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THE
ART OF PREVENTING
THE
LOSS OF THE TEETH,

FAMILIARLY EXPLAINED;

ALSO,

AN IMPROVED SYSTEM OF SUPPLYING
THEIR DEFICIENCIES;

AND A DESCRIPTION OF

The Siliceous Pearl Teeth

AND

TEETH RENOVATOR;

ACCOMPANIED WITH TESTIMONIALS FROM THEIR MAJESTIES' PHYSICIANS
AND SURGEONS.

BY JOSEPH SCOTT,
SURGEON DENTIST.

SECOND EDITION, WITH ADDITIONS.

LONDON:

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LITERARY NOTICES OF THIS WORK.

"There are, we believe, but few persons existing who are unconscious of the comforts to be derived from the enjoyment and possession of a sound and perfect set of teeth. Many there are who from experience can bear testimony to the serious inconvenience to which the loss or injury of that important appendage of the human frame is calculated to subject us to, yet we too frequently find those who are possessed of the luxury wantonly risking its loss by gross neglect or an injudicious use of it. As a preventative of the latter or a cure for the former, as far as may be, we would recommend a perusal of this useful little treatise, and the adoption of the recommendations which it contains. Mr. Scott has here laid down a set of rules for the management of the teeth whilst perfect, and for supplying the defects which may unavoidably occur, that will enable an individual who may from circumstances be deprived of professional assistance to become his own dentist. It also contains several remedies for tooth-ache, accompanied by testimonials from Sir H. Halford, Bart., Sir A. Cooper, Bart., and several other professional gentlemen of the first reputation for skill and science. On the whole, we recommend this treatise as well worthy the attention of those who estimate either the intrinsic value or the external charms of a beautiful set of teeth."—*The Weekly Times*.

"A very excellent treatise from a clever and experienced dentist, which those readers who value a good set of teeth will do well to peruse."—*Lady's Museum*.

"A Treatise on the Art of Preserving the Teeth, by J. Scott, Dentist, was announced in our paper of yesterday. The value of a fine set of teeth, whether in relation to ornament or utility, is too obvious to require any argument to enforce it. Next to the preservation of the natural teeth the acquisition of a good artificial set is desirable, and it is on this subject we would particularly recommend the treatise of Mr. Scott to the attention of our readers."—*The Albion*.

"We have read this treatise, and find it to contain much useful information. The author appears to have combined in it the results of many years' experience, both surgical and mechanical. We strongly recommend a perusal of this work to all persons who set a value upon their teeth."—*The Weekly Dispatch*.

"A brief and intelligible work, containing very useful information."—*The Athenæum*.

"This treatise conveys much useful advice on the subject which it discusses, and ought to be in the hands of every one who values the preservation of what is so essential both to appearance and comfort."—*The Satirist*.

"This work may be divided into two parts, the first of which consists of a treatise on dentition, and contains a great deal of information respecting the structure, formation, and uses of the teeth. The work, besides being extremely entertaining, must be highly useful as a book of family reference. The second part relates to the diseases of the teeth, and the means of preserving them. The author is unfavourable to extraction, and defends his views on this subject with great ingenuity."—*Liverpool Chronicle*.

INTRODUCTION.

HAVING by dint of perseverance, and a great sacrifice of time and money, brought to perfection an unrivalled composition, termed *Siliceous Pearl*, for making artificial teeth, I submitted it to the inspection and judgment of some of the most scientific professional gentlemen of the present day, and received their unqualified approbation of its superior excellence for the formation of artificial teeth, as being superior to any thing of the kind they had ever before witnessed, and declaring, at the same time, that the teeth then produced were equal in appearance to nature, and indestructible in their substance and colours ; in fact, that such teeth were “ as perfect as it was possible for art to effect.”

Furnished with testimonials to that effect, I then, and not until then, undertook to write a treatise to inform the public of their superior qualities, by giving a description of them, and also of my new system of preventing and curing diseases of the teeth and gums, stopping decayed teeth, and my improvements in supplying their deficiencies.

The avidity with which the first edition was purchased being a strong proof of the favourable manner in which my statements have been received by the public, and the necessity that existed for such a work, induces me to make known still further the evils attendant upon operations performed by unskilful professors of dentistry upon the teeth of both adults and children; and to elucidate the causes of the unnecessary infliction of pain, which is so much dreaded by many that they suffer their teeth to be neglected and lost rather than undergo a simple inspection of them, whereby most of the distressing occurrences arising from their defects would be detected and consequently prevented, I conceive it to be a part of my duty to inform timid and delicate persons that no skilful operator has occasion to inflict pain in early affections of the teeth. Being likewise aware that many persons residing in distant parts are unable to come to me for advice, or even to any professional man, and that the excruciating pain of tooth-ache must be immediately attended to, and knowing also that my system was not practised by any other dentist, I fitted up, for the accommodation of such persons, a Dental Case*, furnished with suffi-

* The acknowledged utility of the Dental Cases constructed by me renders it necessary to give a more precise description of them and their respective prices than was given in the first edition. (*For which see the end of this Work.*) They are to be had only of me, at No. 6, Lower Grosvenor Street, Grosvenor Square, London.

cient instruments and preparations for performing operations upon the teeth and gums, arranged so as to be easily comprehended, and by which, and carefully attending to the instructions contained in this treatise, any person may perform most of the operations necessary for keeping the teeth and gums free from pain and in a healthy state. That such an acquisition was much wanted, not only by gentlemen of the army and navy, clergymen, heads of families and seminaries, but even by physicians, surgeons, and apothecaries, I have documents from nearly all parts of the United Empire, as well as from many remote parts of the globe, to testify.

Operations unskilfully performed are often of such a disastrous tendency as to render tedious all the efforts of the most skilful to relieve them ; while others, where the ill effects are not of so irremediable a nature, may, by the timely and scientific treatment of an experienced practitioner, be very soon alleviated, if not wholly removed. Instances of both being daily brought to me for my advice, I have selected a few of them, in addition to those cases already inserted in the first edition, and the means I adopted to relieve them.

Many persons never think of applying to dentists for advice until they feel the ill effects arising from neglected teeth, diseased gums, or are attacked with that excruciating pain—the tooth-ache, when, perhaps for the first

time, they proceed in search of a dentist. In this state they are recommended, or their attention is attracted probably by the advertisement of a person styling himself a surgeon-dentist, who professes to relieve the most violent tooth-ache in a few seconds ; but professing to relieve is not relieving, as thousands have wofully experienced. The usual remedy proposed (and, perhaps, agreed to by the suffering patient) is the immediate extraction of the tooth (often unnecessarily), by which a valuable organ of mastication and distinct articulation is irrecoverably lost, and the whole organization of the set of teeth destroyed ; nay more, a contortion of the countenance follows, unless its place be immediately supplied by an artificial one. Sometimes, however, the practitioner will recommend stopping as a cure for tooth-ache, and fill the tooth (if a hollow one) with a deleterious composition, which, by his parasitical eulogiums, and performing the operation in a few seconds, without pain, is often submitted to by the unwary victim. This stopping does sometimes give temporary relief, by excluding air and particles of food from irritating the nerve, but being rapidly corroded by the solvent effects of the saliva it soon becomes porous, admitting moisture and the atmospheric air, which being naturally followed by a return of the pain, renders it necessary to have the stopping removed in order to a curative treatment. As its removal, however, cannot be effected without excessive agony, owing to its hard and

corroded state, the extraction of the tooth becomes imperiously necessary, whereas had the patient been treated in the manner I have laid down for treatment of the tooth-ache in this work, the tooth would probably have been preserved for many years, if not for life, without pain or inconvenience.

I cannot too strongly impress my readers with the ill effects of suffering their teeth to be stopped while in a state of pain or tenderness; if, as soon as decay is discovered, the speck be removed and the cavity properly stopped, the decay may be prevented from reaching the nerve; but if the nerve (by inflammation) be risen out of its chamber, stopping the tooth with any composition, however good it may be, is sure to increase the pain to an unbearable degree; for even the fitting of artificial teeth should not be persevered in unless the gums be in a healthy state.

Persons beginning to feel the loss of their teeth are not unfrequently tempted to supply their places with bone* teeth; it therefore becomes my duty to make known their defects:—they are so soon destroyed by the powerful effects of the saliva and heat of the mouth, as not unfrequently to need replacing by a new set twice

* When the term *bone* is used, it should be remembered that it applies to sea-horse ivory or any other kind of animal bone—human teeth included.

in a year ; for, directly after being fitted to the mouth, their decomposition commences, and a succession of unnecessary expense and trouble is thus constantly kept up to the annoyance of the wearer. It is not unusual to return worn out pieces when new ones are fitted, and many of the workers in bone have now in their possession hundreds of such returned pieces by them, while I have but one piece of the Siliceous Pearl by me which has been worn. This piece I keep for inspection. It has been worn for some years, and is composed of a gold plate, on which are fastened front teeth made of Siliceous Pearl, and back ones (at the desire of the wearer) of sea-horse ivory. The latter, in about two years, were so destroyed as to require to be renewed, which they were with the same kind of ivory ; but they also becoming discoloured, and their effluvia offensive, the wearer requested me to replace them with Siliceous Pearl. As I considered it a corroborative proof of the clean and durable qualities of my composition over any other substitute, I requested her to have an entire piece of Siliceous Pearl, and allow me to keep the old one as a curiosity for my cabinet ; this she consented to ; and thus I became possessed of it. Such a testimony of the durability and other good qualities of the composition of which they are formed speaks volumes—seeing it is not merely assertion, but is a fact known to all persons who have worn them.

Another incitement to the unwary to have perishable ivory teeth is the use of the term "Capillary Attraction," &c. in the fitting of them, a description of which will be found in pages 66 and 67 of this work, to which I have only to add, that in whatever manner bone teeth may be fitted it adds not to their durability; for all animal substances commence decomposing the moment they come in contact with the moisture of the mouth, and, in decomposing, emit an offensive effluvia, which, independent of its disagreeable effect upon others, is also considerably injurious to the health of the wearer. Hence persons having human or dead persons' teeth, or teeth made of any animal bones, constantly in a decaying and rapidly dissolving state in their mouths, cannot be surprised if they are attacked with consumption or other diseases. Impure air carries miasma wherever it reaches; how much more then must it impregnate the vitals when it is constantly inhaled? Nor will the endless trouble of removing and cleansing them repeatedly at all avail in removing their deleterious effects, as the moment they are replaced in the mouth their further decomposition begins again, and the moisture retained by them lodging around the necks of the sound teeth (if any) eventually causes them to become similarly destroyed; but as one fact speaks more as to their ill effects than volumes of abstruse reasoning, see p. 70 of this treatise, extracted from the writings of an eminent practitioner.

The superior qualities of the Siliceous Pearl Teeth to natural ones, sea-horse ivory, or any other animal substance, will be more strikingly contrasted on perusing the following statement:—

SILICEOUS PEARL TEETH.

Being made of a soft composition, and afterwards vitrified by intense heat, can be moulded or carved to fit or imitate not only the teeth or gums in all their varied shapes and colours with greater precision than any other substance, but even as a substitute for any part of the face or palate, that may be disfigured or defective from the ravages of disease, gun-shot wounds, or other causes, as it can be made of a substance no thicker than parchment.

Are so indestructible both in form and colour that they always appear the same after years of servitude; they never emit an unpleasant odour, and will endure for life.

Teeth and gums made from the Siliceous Pearl Paste are coloured to represent nature, which colours being burnt in in a furnace of intense heat, can afterwards undergo no change from the heat of the mouth or saliva, nor be stained from any cause whatever.

HUMAN, OR ANY OTHER KIND OF IVORY OR BONE TEETH.

Human teeth being already formed by nature, require only to have their roots filed off for fixing in the mouths of such as have no objection to them. All other kinds of bone teeth are too white to resemble nature when first placed in the mouth, but soon change that colour and become almost black and putrid (as do human teeth when placed in the mouth artificially) shortly after they are put into use.

All kinds of ivory being corruptible are offensive both to the sight and smell of the wearer and beholder, and require to be frequently taken out, in order, by washing, to remove, as much as possible, their intolerable smell, and being soon worn out are a constant expense to the wearer.

Imitations of the gums made of bone are clumsy, and sooner destroyed than even the teeth are, from the artificial colour given to them being incapable of withstanding the corroding effects of the saliva even for a week, and so liable to be stained that they soon form a contrast in the mouth with the neighbouring teeth. The discolouration of the gums frequently appears like a black ridge extending over and along the circle formed by the arch of the teeth.

Not being porous cannot swell or diminish, nor be otherwise affected by any heat or moisture to which they are exposed; and are so far from injuring the teeth to which they are allied that they act as supporters to them, and keep them firm in their sockets longer than they would otherwise remain.

The manner in which the pivots are fastened is different from any other; the pivot (gold or platina) being passed through the centre of the substance is there amalgamated, as it were, by the powerful effects of a reverberatory furnace, or soldered, as circumstances require, so as to render it almost impossible for the usual action of mastication to break or remove them.

Imbibe moisture, then swell and afterwards diminish in size, which latter circumstance in particular tends to pull their allies closer to themselves, and thus the person's own teeth, if they should not decay, become loose, and finally fall out.

Natural or bone teeth being easily corrupted and decayed, separate themselves from their pivots, by reason of the holes in which such pivots are inserted becoming too large, owing to their dissolving away from around the pivots, so that the teeth often fall out in the process of mastication and pass with the food into the stomach—the pivot sometimes remains in the tooth thus swallowed. To the scientific the following remark is unnecessary, but being frequently asked why ivory teeth cannot be soldered, I feel it my duty to give such of my readers as do not comprehend the reason the following reply:—That the hundredth part of the power of the blow-pipe would calcine any small animal substance (like a human tooth) in a moment. The effect of heat upon a bone would immediately be seen by throwing one into the fire.

Having said thus much upon the injurious tendency of ivory teeth, it now becomes necessary that I should inform my readers of what description are the present dentists of London, and, indeed, of the civilized world. It will no doubt astonish them to hear me publicly declare that there are not twelve dentists in this vast Metropolis who can scientifically fit teeth so as to

answer all the purposes of mastication and articulation correctly; and as to those who possess a surgical knowledge of the teeth I fear they are still fewer, although there are 200, if not more, who profess it. Among these are a number of jewellers, watchmakers, goldsmiths, ivory-turners, schoolmasters, drapers, tailors, &c., many of whom are worthy members of society, and are no doubt ingenious men in their way, but must be supposed to be wholly unacquainted with medicine, chemistry, or surgery, consequently cannot scientifically perform operations on, or prescribe for, the diseases of the teeth and gums. The majority of the profession are English Jews, many of them calling themselves foreigners, most of whom are itinerant dentists, whose original avocations it would be difficult to ascertain.

Here it may be asked how such professors manage to supply persons who stand in need of artificial teeth? I answer—With respect to supplying artificial teeth a mechanical dentist, who keeps a number of men in his employ, assured me that he supplies upwards of fifty of them with teeth ready fitted to their models, and complains much of his work being often spoiled by the unskilful handling of his employers in placing them in the mouths of their patients, an instance of which he gave me nearly in the following words :—A fashionable dentist employed him to make a set of teeth for a lady,

and as he was to be liberally paid for them he used his utmost endeavours to finish them in a handsome manner. They were shortly afterwards returned to him for alteration (as must always be the case when not previously fitted to the mouth); but the beauty of the workmanship was so defaced that in a rage he had nearly thrown them into the street, heedless of the loss he would thereby sustain. Fortunately, however, he finally resolved more wisely to make the alteration required and rectify them; after which he took the precaution of sending one of his workmen to fit them to the lady's mouth, and to prevent them from being again spoiled by the unskilful handling of this professor.

A young lady who had lost some of her back teeth applied to the same fashionable dentist above alluded to, to supply her with artificial ones, which was done; but owing to their not fitting, and thereby causing irritation, she applied to him to have them re-fitted in a more accurate manner. To each application he, in a most insulting way, replied that her complaint was groundless, and that she could not be better fitted: as a proof, however, of her conviction of the contrary, she returned him the teeth with a note expressive of her indignation. I have since had the pleasure of furnishing this lady with two small pieces in place of those she had sent back, and she continues to wear them with perfect ease and satisfaction.

It is far from my disposition to endeavour to prevent the ingenious from profiting by their ingenuity ; and, as I have no reason to complain of the want of practice, it cannot be from motives of jealousy that I am induced to point out what most of the present professors of dentistry have been bred to ; my sole motive being to guard the public against the chicanery of the majority of its professors, from the unskilful operations of whom many of the public are led to suppose the art to be imperfect. To remove such a false impression, and to uphold the respectability of the regular practitioners, is my only aim ; and to accomplish this desirable end my opinion is, that the respectable part of the profession should unite to obtain a charter, as was lately found necessary for the regulation of the Apothecaries' Company. Such a measure would be attended with the greatest benefit to the public, by excluding in future all who were not regularly educated, and give lustre to an art which has now reached its climax of perfection. I shall here add, that my exertions, either personal or pecuniary, to procure such a *desideratum* shall not be wanting, under a conviction that the treatment of the diseases of the teeth and gums require the same degree of surgical and medical skill as the diseases incidental to other parts of the human frame.

Institutions for the relief of diseases of the eye and ear are not among the wants of this great Metropolis ; but, with the exception of having a tooth extracted

gratis at the hospitals or dispensaries, institutions for the relief of diseases of the teeth and gums, more especially that far more excruciating torment, the tooth-ache, are nowhere to be met with. Such institutions would prove not only a nursery for the improvement of students in the profession of dentistry, but would also enable pupils in medicine to add to their other acquirements the useful knowledge of the dental art, and would, by the relief imparted to the poor, well reward the humanity and generosity of those who would forward themselves in establishing them. Indeed, a strong proof of such institutions being much needed is furnished in the number of Dental Cases purchased from me by wealthy and benevolent persons, principally with a view of relieving their poor neighbours who are situated far from medical aid.

Being aware that there are but few persons (out of the profession) who are at all acquainted with the causes of, or the remedies for, the diseases of the teeth and gums, nor with the facility by which their primary causes can be removed, and the diseases of the teeth and gums eradicated, I undertook writing the present treatise, not only for the purpose of giving publicity to my inventions and improvements, but also in the hope of being able to instruct such persons as were furnished with it and one of my dental cases to relieve themselves or their neighbours when professional assistance cannot be procured ; and also to enable persons to judge whe-

ther the operations (either surgical or mechanical) of those dentists, under whose hands they may happen to fall, are skilfully performed. For this reason I have concisely endeavoured to render the subject intelligible to those whose avocations have not afforded them an opportunity of being at all acquainted with the operations of dentistry, and, to prevent my readers from having their ideas bewildered, I have abstained as much as possible from the use of technicalities.

My improvements will be found to consist in a new mode of curing the tooth-ache, stopping decayed teeth, and of constructing artificial teeth, with their fastenings and fixings, the mechanical part of which is so well arranged, that, after being once fixed, they seldom require the subsequent attendance of the persons in whose mouths they are fitted; in addition to which it is necessary to add that the composition of which Siliceous Pearl Teeth are made is known only to myself, and that such teeth cannot be had of any other dentist.

The Siliceous Pearl Teeth having undergone the investigation of some of the most eminent and scientific of the Faculty, and been approved of by them, and being, as they are, duly appreciated by a humane and discerning public, the further use of human (or natural) teeth is much discouraged, and that they will,

ere long, be wholly exploded there appears to be little doubt ; indeed, how any persons of delicate habits can suffer human teeth for a moment to be placed in their mouths when the atrocious manner in which they are procured is seriously considered, and the liability of such teeth communicating disease to the wearer, when extracted, as they are, from subjects stolen out of their graves for the dissecting table, is most amazing. For here, I may be allowed to ask, are not the teeth supplied for such purposes always obtained from the dead bodies of persons who had not attained the meridian of life, and consequently must have been sent to their graves by the effects of some incurable malady ?

Between twenty and thirty years ago the following observations appeared in a work on dentistry, written by a celebrated dentist named Murphy, respecting the first attempts of an ingenious surgeon dentist to introduce a kind of mineral paste teeth to supersede the objectionable use of those plundered from the dead :—

“ The artificial teeth, called mineral, are composed of baked earth, covered with an enamel flux, and coloured to imitate nature. Many of them, however, have but little resemblance to nature—their opaque, livid appearance very much resembling earthenware. I am, however, of opinion that the art of making mineral or enamel teeth is still capable of great improvement.”

In another work, written by Fuller, a few years afterwards, we find the following remarks :—

“The great improvement which of late years has been made in the supplying of artificial teeth, is in the use of porcelain composition instead of the sea-horse bone; and, where expense is not an object, the superior cleanliness and incorruptibility of such artificial teeth will always entitle them to the preference.”

A few years previous to the above, the mineral paste teeth, then in their most imperfect state, elicited the following eulogiums from M. Geoffroy, President of the Royal Society of Medicine at Paris:—

“I further attest that the teeth of sea-horse*, which I wore for only one year, had so much disgusted me, by the bad smell they gave to my breath, and the disagreeable taste they communicated to my food, that I had not only withdrawn myself from company, but even taken them out to be able to eat.

“I no longer doubt that my ill state of health proceeded from the putrid miasma given out by the bony substance of this set of teeth. It is a fact that experience has proved to me; for since I have laid them aside and have used yours my health is materially improved.”

About seven or eight years ago, however, a self-styled dentist (by trade a working jeweller), who was a professed admirer of human or ivory artificial teeth, and who converted many to his opinion by causing them to overlook how much a week's wear would destroy the colour and precision of his favourite kinds of teeth, made the following sarcastic remarks on mineral paste and terro-metallic teeth:—

“Among the various modes now in use for supplying artificial teeth that of composition, or porcelain, lately offered to public notice, holds a conspicuous place. Whether this be an ancient or a modern

* Sea-horse ivory is accounted the best of all animal substances for the making of artificial teeth. What must other bone be?

discovery it would be somewhat difficult to determine. If it be ancient, its simplicity did not perpetuate the use of this composition; nor is its cheapness likely to afford any great proof of its usefulness, by recommending it to general use. The teeth to be seen in the mouths of figures on a porcelain jar will afford a tolerably correct idea of this composition; and the clatter of a china-woman's basket that of their effect in one's mouth. The method of making composition teeth is so simple, that to describe it may occasion some risk of making the bakers turn dentists, and so deprive us of our daily bread, or at least to render them as common as hot muffins.

"A serious inconvenience is felt with peculiar severity by those who have the misfortune to wear crockery teeth—the impossibility of fitting them properly to the gums, and the consequent necessity the gums are put to of adapting themselves to the new teeth. It may be here remarked what has, perhaps, already occurred to the reader, that composition teeth undergo some little change of their shape and size while in the furnace; this circumstance, added to the well-known fact that, in most cases, a model of the mouth cannot be taken in wax or any other substance with absolute perfection, renders it necessary that the substance of artificial teeth should admit of such further alterations, after the model has been laid aside, as to fit it to be worn without pain or inconvenience. Of this the composition teeth do not admit; so that it becomes a matter of astonishment how they ever should have come into use."

Shortly afterwards, a brother of the above jeweller-dentist, a schoolmaster, or teacher in a National School at Inverness, actuated no doubt by the success of the jeweller in his new profession, repaired to London and turned his thoughts to the profession of dentistry, which he undertook; and to give publicity to himself in his new avocation, compiled a treatise on dentistry, in which, adopting the sentiments of his relative, he further propagated, by his valuable testimony and *experience*, his conviction of the evil effects of all kinds of artificial teeth save such as he could purchase from others, conse-

quently decrying the use of the Siliceous Pearl Teeth as being wholly out of his reach.

But the last kick to the lion was reserved for the ass. In a more recent treatise on dentistry, published by one of the Hebrew tribe who founds his claim to notoriety on his *dexterity* in extracting teeth. Following the cuckoo-note of his predecessors his first objection is founded on a total ignorance of their substance; namely, that "the brilliancy of their glaze or enamel renders them a conspicuous mark of observation." The Siliceous Pearl Teeth have no glaze or enamel, being the same material throughout, after being repeatedly ground upon a hard stone.

The second objection, namely, "the impossibility of altering them after having undergone the process of the furnace," is also false, as any improper sinuosities are always afterwards removed by grinding.

The third objection, namely, "their clatter in the mouth," is founded on a want of knowledge betraying a total ignorance of the subject they are treating of. To make a "clatter" it is necessary that sonorous bodies should be struck against each other, and to emit such a sound should be poised or hung so as to give them a tremulous motion. Now the only motion that can be communicated to the teeth is by the repeated action of

the under jaw against the upper, which would produce no greater sound than do our own teeth when we strike them against each other. No sound, conveying our idea of a "clatter," can be produced from compact substances fitted on a base which is afterwards embedded on a soft substance like the gums, even if the teeth were actually porcelain.

Against these and such puerile objections I should have considered it equally puerile to reply, had they not so artfully blended the imperfections of the mineral paste and the terro-metallic teeth with the qualities of the Siliceous Pearl as to cause the last objection to be several times put to me by way of serious and friendly question, and that by persons of superior talent whose friendship I am eager to retain, and whose judgment I would be proud to guide to truth, I must therefore say, that if the above be really the sentiments of these pitiable fanatics with regard to the Siliceous Pearl Teeth, their knowledge of them must be indeed very superficial. I cannot, however, persuade myself but that the above sentiments proceed from envy of their superior—of their unimprovable qualities; and that, driven to despair by the knowledge of their utter impossibility of being able to produce or procure the Siliceous Pearl Teeth* now so universally

* Between four and five years ago, when I had brought to perfection the Siliceous Pearl Teeth, and gained for them the universal approbation of all who saw them, I offered to supply the profession

sought after, owing to the general knowledge at which the public have arrived of the defects of human teeth, &c. &c. they vainly attempt to deteriorate them. But shall the opinion of such men be set in opposition to those of the eminent, skilful, and uninterested gentlemen who have favoured me with testimonials of their approbation of my discovery? Forbid it reason—forbid it common sense! The cleanliness, durability, and incorruptibility of the Siliceous Pearl Teeth are not denied even by their opponents. How insignificant then must be their objections, when all the properties that are required of artificial teeth is obtained!—(*See their intrinsic qualities described in this Treatise, pp. 74 and following.*)

Had dentistry only been practised by practitioners in medicine the baneful practice of using the teeth of our deceased fellow-creatures would (if it had ever been suffered to creep into use) long since have been exploded. Owing to some mistaken idea, however, the practice of dentistry has till lately been totally neglected by the Faculty, perhaps from its having been formerly practised principally by mechanics, as, indeed, it still is. Whatever may have been the cause, however, the fact

with them; but before I had parted with a single tooth I found that the French mineral, or ferro-metallic teeth, were substituted by several dentists for mine. Finding, therefore, the description of men I had to deal with, and the injury I was likely to sustain from their chicanery, I withdrew altogether my original intention of supplying the profession.

is, that the state of the teeth, although often the primary cause of disorders of the stomach, are wholly overlooked by the physician, who considers the care of them to be the province of the dentist. Now, in such case, if the dentist attendant on the patient should happen to be one unskilled in professional knowledge, the duration of the disease is prolonged from not being attended to, and the seeds of it are thus suffered to lurk unheeded until chance or a more skilful practitioner be called upon. I am happy to add, however, that many physicians of the first eminence of the present day have found the necessity that exists for inspecting the teeth of their patients, when consulted upon derangement of the stomach, and I hope that their discreet and praiseworthy example will be adopted by the Faculty in general; so that in future the medical practitioner being initiated in the art of dentistry will not only expel the mystery of empiricism in this important branch, but will, I feel convinced from my practical experience, throw a light on the causes of many internal diseases hitherto enveloped in mystery.

In conclusion, as my system is altogether different from any other hitherto practised, it may be necessary to state, that it is derived from many years of experience and successful treatment, founded on the theory and practice of medicine and surgery, and as such I confidently offer this work to the perusal of all persons

who feel interested in the preservation of their own or others' teeth, flattering myself that it will be found to contain what no other work of the kind yet published has—namely, a certain guide for “preventing the Loss of the Teeth.”

J. SCOTT.

CERTIFICATES, &c.

THE following letter was presented to the Author by Sir Astley Cooper (Serjeant Surgeon to the King), who received it from Mr. Bell, the Lecturer on the Anatomy and Diseases of the Teeth at Guy's Hospital :—

“ My dear Sir Astley,

“ I have carefully examined Mr. Scott's Artificial Teeth, and have no hesitation in saying that I consider them infinitely superior to any thing of the kind hitherto produced. They have all the advantages of indestructibility which have been claimed for former inventions of the sort, and approach as nearly to the appearance of nature as I believe it is possible for art to effect.

“ I am, my dear Sir Astley,

“ Very respectfully, yours,

“ THOMAS BELL.

“ Sir ASTLEY COOPER, Bart.

“ Conduit Street.”

“ The foregoing letter has been addressed by Mr. Bell to me, and I have thought it but justice to hand it over to Mr. Scott.

“ ASTLEY COOPER.

“ *March 22, 1830.*”

The following Certificates were also presented to the Author by the Gentlemen whose names are attached, Physicians and Surgeons to their Majesties :—

“ Mr. Scott’s invention seems to me to be original, and to promise important services.

“ HENRY HALFORD.

“ Curzon Street, Mayfair,
“ *July* 30, 1830.”

“ Mr. Scott’s invention appears to me to be very ingenious, and certainly much superior to any thing of the kind which I have had the opportunity of examining.

“ B. C. BRODIE.

“ Saville Row,
“ *July* 30, 1830.”

“ I have examined Mr. Scott’s Artificial Teeth, and think very highly of the invention. They are superior in point of appearance and colour to those invented by De Chemant, and in many cases will be found preferable to teeth made of bone, &c.

“ H. EARLE.

“ George Street, Hanover Square,
“ *July* 30, 1830.”

“ Mr. Scott’s Artificial Teeth appear superior to any thing of the kind I have ever seen.

“ H. H. SOUTHEY.

“ Harley Street,
“ *August* 1, 1830.”

TREATISE
ON
THE STRUCTURE
OF THE
TEETH
AND THEIR PROPERTIES.

TEETH are given to us by the great and all-wise Author of our being for the purpose of breaking and grinding our food, so essentially necessary to a good digestion ; without which the whole of the animal system becomes deranged. Hence it appears, that upon the action of the teeth principally depends all the healthy functions of the body.

The teeth are vascular organised bones, possessing vitality, and are analogous to other bones, as regards their having nerves, blood-vessels, and absorbents, but are harder and whiter. They are commonly divided by anatomists into three parts ;—the crown, neck, and fangs, and are placed one beside the other in the upper and under jaw. In adults (with a few exceptions) there are sixteen in each jaw ; the part covered with

enamel* is called the crown; the part embraced by the gums is called the neck; the fangs or roots are buried and fixed in the alveoli or bone sockets, and are consequently bedded in the jaws, so that each tooth fills its appropriate socket, being separated only by a thin spongy partition. The tooth has an inner cavity, which begins by a small opening at the point of each fang, and becomes larger as it approaches the crown: these cavities are filled with nerves and blood-vessels; but in aged persons they are sometimes filled up with an osseous or bony substance; and in such cases the teeth become insensible. From the fangs, to a little beyond the sockets, the teeth are invested with a periosteum† attached to the gums, which is thin and vascular, and appears to be common to the teeth it encloses, and the socket which it lines.

The gums externally surround the teeth, and are also vascular, and very little sensible to pain. In infancy they have a hard ridge extending through their whole length, which performs the office of the teeth upon soft

* "The enamel is an extremely hard, milky white, semi-transparent substance, composed almost exclusively of earthy salts, principally phosphate of lime, containing a trace only of animal matter. It is the hardest of all animal substances, and consists of minute fibrous crystals, resembling in texture the fibrous carbonate or sulphate of lime; they are disposed in a radiated direction with respect to the centre of the tooth; consequently the combined external extremities of the crystals form the surface, and the internal extremities are in contact with the bony substance; so that their sides are parallel with each other."—BELL.

† A membrane, furnished with arteries, veins, nerves, and absorbents.

substances; but in adults, who have lost their teeth, this ridge is wanting.

There are four denominations of teeth, which are classed as follows:—viz. *incisores*, *cuspidati*, *bicuspidati*, and *molaes*. The *incisores*, or cutting teeth, are eight in number (four in each jaw), and are situated in the front of the mouth: they are flat and sharp-edged, for the purpose of cutting the food; their roots are single. The cutting teeth in the upper jaw are fixed obliquely, and protrude so as generally to cover those of the like description in the under jaw.

Next to the cutting teeth are the *cuspidati*, commonly called “dog-teeth,” so named from their resemblance to the teeth of that animal, they being pointed. They are also called the “eye-teeth,” from the roots of those in the upper jaw reaching nearly to the orbits of the eyes. They are four in number, and are placed one on each side of the cutting teeth in both jaws; their roots are single.

The next two teeth on each side in both jaws are termed the *bicuspidati*, or small grinders. They appear at both extremities as if they were formed by the junction of two cutting teeth, having only one root.

The *molaes*, or large grinders, are twelve in number, three being situated at each extremity of the upper and under jaw. The roots of them vary. In the under jaw they have only two, while those in the upper jaw have three. The extreme grinders of each jaw are further distinguished by the name of *dentes sapientæ*, or “wisdom

“teeth;” the roots of these appear compressed, as it were, into one, and are the last teeth that make their appearance. The surfaces of the crowns of the large grinders are full of indentations or irregularities, which renders them capable of grinding the food between them. The teeth on one side of the mouth correspond with those on the other side, both in figure and size.

Of the Formation of the Teeth.

THE first appearances of the teeth in the jaws, before the birth of an infant, are soft pulpy bladders, bearing the resemblance and figure of the teeth about to be formed, and are each contained in a vascular membrane. About the fifth or sixth month of pregnancy, the tips of these pulps begin to ossify, or harden into the substance of bone, and gradually extends from the cutting edges over the pulp downwards. These are the temporary teeth, which constitute the first set, and are twenty in number;—viz. eight cutting teeth, four eye teeth, and eight grinders. Even at this early stage, there are rudiments of the formation of some of the teeth which are to become part of the permanent set. As ossification proceeds, the pulps of the temporary teeth are gradually converted into bone: on their under surface their roots are formed; and the bone on their crowns receives a crust of enamel.

Dentition, or Teething.

THE first symptom of teething after birth is when the gums begin to inflame around the parts where the teeth are about to appear. The child is generally restless, but is always more quiet when its gums are rubbed with the fingers; and the saliva mostly falls from its mouth profusely; the bowels are usually relaxed, but sometimes the reverse of these symptoms is the case, which causes fever, that is attended with such an irritation of the system, as often to bring on convulsions. In such cases I would recommend emetics to be given in very small doses, every four or five minutes, till it has the desired effect, or an evacuation downwards takes place. The best preparation for this purpose is tartar emetic; opiates may also be occasionally given, as well as the use of the warm bath; but, above all, lancing of the gums over the approaching teeth should be adopted previously as a preventive and subsequently, not only as a cure but to prevent a recurrence, when the incision should be carried as deep as the tooth, which ought to be partially exposed. When this operation is properly performed, I have almost always found it give immediate relief, as the bleeding which follows is of considerable service in allaying the irritation of the gums; and the effects of it need never to be feared by parents, as it is

6 PUTTING FORTH OF THE TEETH.

attended with no dangerous consequences, but, on the contrary, produces the most happy results. Indeed, where medical aid cannot be immediately procured, the operation may be performed by any person with a sharp penknife. Throughout the whole of this critical period, particular attention should be paid to the keeping of the bowels open, by occasionally administering magnesia and rhubarb.

Putting forth of the Teeth.

THE precise time of putting forth the temporary teeth of a child seems to depend upon its constitution. Those of some children protrude as early as the fourth month after their birth, which is occasioned by the growing of the fangs causing the teeth to become too long for further detention beneath the gums, whereby the pressure causes absorption of the membranes and gums that cover them. Sometimes, indeed, children have been born with one or two fore-teeth already protruded, while, on the contrary, many children attain the age of fifteen, twenty, or even more, months, before the cutting of their teeth takes place; but the most usual time is about the sixth, seventh, or eighth month after their birth; those corresponding to each other protrude about the same time, the two central cutting teeth in the under jaw generally appearing first (one a few days before the other), and

then their antagonists: sometimes, however, the contrary happens, as those in the upper jaw first make their appearance; but in either case they are mostly followed by their opposites in about a month afterwards. These, in a few weeks, are followed by their laterals in the same order; in about three or four months after which, the anterior grinders of the under jaw come forth, and are shortly afterwards met by their antagonists in the upper jaw. The eye-teeth follow in a similar manner; and generally before the child attains the third year of its age, the posterior grinders shoot forth, and the temporary set of teeth are completed. The diseases of the temporary set of teeth require the same treatment as the permanent ones.

Of the Formation of the Permanent Teeth.

HAVING before stated that, in a very early stage of the formation of the temporary teeth, the rudiments intended to form the permanent or adult set, were in a state of progression, it is now necessary to mention that those rudiments are firmly and closely attached to the temporary teeth, contained in the same socket; and, as they become large, a division of the pulps takes place, a separate socket being formed for each. In this state they remain connected by means of the membranes and the gums. The pulps commence hardening on their tips: the process of their formation proceeds simi-

larly to the temporary ones. At the age of six or seven years, the jaws of a child that has not lost any of its teeth, contain twenty temporary and twenty-eight permanent teeth, together with the four sacs or pulps of the wisdom teeth. These four sacs, with the twenty-eight permanent teeth, constitute the thirty-two, or complete adult set. The permanent teeth are harder and most of them larger than the temporary ones, and are placed a little behind; consequently, during their growth, they are confined in the segment of a smaller circle than those whose places they are destined to occupy, and, as they ossify and enlarge in size, become much crowded in the jaws, being at that time forty-eight in number, exclusive of the four sacs. As the permanent teeth increase in length, the roots of the temporary ones are absorbed, which gives them a fractured appearance; and hence, no doubt, arose the erroneous opinion of some of the ancient anatomists, that the temporary teeth had no roots, and were pushed out by the permanent ones. But Mr. Fox, in his "Natural History of the Human Teeth," says, "that this cannot take place will be seen by observing the state of the two sets of teeth. The temporary ones are firmly placed in sockets, while the new teeth, during their formation, are contained in cavities larger than themselves, and can only make such pressure as their gradual growth will permit. On this account, if the absorption of the old tooth be retarded, or the formation of the new tooth proceed too quickly,

the latter will take an improper direction when they come through the gums, and form a second row of teeth, from the temporary teeth still remaining. Moreover, if the old teeth were pushed out by the new, we should always find those teeth about to be displaced, forced out of the line of the others,—a circumstance which never occurs.”

Of the Shedding of the Temporary Teeth.

THE shedding of the temporary teeth, to make room for the permanent teeth, is a wonderful instance of the wisdom of the Creator. This operation commences about the sixth, seventh, or, at the farthest, in the eighth, year of a child's age, when the anterior grinder of the permanent set (which is always the first to be seen) discovers itself, the two central cutting teeth of the temporary set soon afterwards become loose and fall out, and the permanent ones appear in their stead within a short period of each other. In the course of two or three months afterwards, the large central cutting teeth in the upper jaw also loosen, and, on dropping out, are succeeded by the permanent ones of the same description. After a lapse of three or four months more, the lateral (or side) cutting teeth in the under jaw are removed and replaced in a similar manner; and, shortly afterwards, those of the same description in the upper jaw follow in the same way. In less than twelve months af-

terwards, the temporary grinders begin to move, and are generally shed before the eye-teeth, the first small grinder of the permanent set occupying the place of the first temporary grinder ; and, about the same time, the second temporary grinder and the eye-teeth become loose, and the second small permanent grinder takes the place of the second temporary grinder ; some time after which, the eye-teeth occupy the place of their predecessors. About the twelfth or thirteenth year, the second large grinders are protruded ; and about the seventeenth or eighteenth year the wisdom-teeth may be expected ; but sometimes their appearance is delayed to a much later period, even beyond the thirtieth year. These are the last, and complete the adult or permanent set.

Of preventing the Irregularities of the Teeth.

THE irregularities of the permanent teeth arise principally from improper treatment of the temporary ones during the time of their shedding. Sometimes they are extracted too soon and sometimes too late to admit of the permanent ones occupying their proper station in the dental circle. The disfiguration caused by such an occurrence is too well known to need much comment here. A too crowded set of teeth, if not timely attended to, will cause diseases, which, sooner or later, will destroy the finest and best set of teeth. I have generally found, that

the surest way of preventing irregularities, is to leave Nature more to herself in performing her operations than is usually done. I do not by this mean to deny that there are not numberless cases in which the extraction of temporary teeth are necessary to preserve the symmetry of the dental circle. To effect the desirable object of a regular arrangement of them, the progress of the permanent teeth should be narrowly watched by a dentist well acquainted with the anatomy of the jaw; for I am persuaded that much injury, independent of the cruelty, has arisen from extracting teeth before the proper time, by which impropriety the membranous cord which connects the permanent tooth to the temporary one is destroyed; and thus the protruding tooth is predisposed to premature destruction by the deficiency of its formation: but this is not all; as long as the temporary teeth remain, they preserve the proper dimensions of the jaw by preventing its contraction, a material point to be observed, and requiring much judgment, as, from the contracted circle of the jaws at this early age, most of the irregularities of the teeth arise. Upon this point, Mr. Bell observes,—“ I have known no less than eight, and even ten, firm teeth, forcibly removed from the jaws of a child at once. I will not employ the terms of indignation and disgust which such barbarous quackery deserves; but surely the unnecessary infliction of pain, upon the plea of preventing an evil, which, in the majority of instances, there is not the slightest reason to

apprehend, and which, even where it might occur, can always be detected in time to obviate it, is of sufficient importance to deserve reprobation. * * * * But there are other and more important reasons for avoiding the early removal of the deciduous teeth. It should be remembered, that the connexion between the temporary tooth and the succeeding permanent one continues to exist by means of the cord extending from the sac of the latter to the neck of the former, which must be torn through, if the temporary tooth be removed before the sac is absorbed. Until, therefore, the secretion of the enamel is perfected, which is not the case until a short time before the edge of the tooth passes through the gum, the extraction of the temporary tooth may very probably interfere with the healthy and uniform deposition of this substance.

“ There is yet another evil resulting from this empirical mode of treatment, which has hitherto been unaccountably overlooked, but which should be impressed on the mind of every practitioner to whom the care of the second dentition is entrusted. The temporary teeth, as long as they remain in the sockets, from being arranged in a continuous and even series around the arch of the jaw, tend to preserve its form, and prevent its contracting during the growth of the child, when every part of the body is undergoing continual alteration, in form as well as in size. By the time that these teeth have become loosened, the permanent ones, in the natural course of the change, are ready to fall into their place, and thus

the correct form of the jaw is preserved ; but if the temporary teeth be removed before the permanent ones are so far advanced as to be ready to occupy their situation, the support of the alveolar processes being thus lost, the arch of the jaw contracts, and when, subsequently, the permanent teeth are fully formed, there is not room for them to range in their proper situation. Thus the operation which was intended to prevent irregularity, becomes the cause of its occurrence, and that in its very worst form ; producing a want of accordance between the size of the teeth and that of the jaw. I have seen so many instances in which this result has taken place, that I have perfect confidence in stating the opinion."

The following rules will in some measure be a guide to those parents who cannot at all times procure the advice of a scientific practitioner. They are those recommended by the above-mentioned gentleman, whose opinions and practice I highly approve of, and refer the medical practitioner to his more copious description in his "Treatise on the Diseases and Anatomy of the Teeth," pp. 89, &c., which rules I have here briefly extracted as follow :—

" If the inferior central permanent incisores (the two middle cutting teeth in the under jaw) have actually appeared through the gum behind the temporary, the latter, even if they be not yet loosened, may be removed ; though I have seldom or never found any ultimate injury to result from leaving them even till the permanent ones

have acquired considerable size, unless where the jaw itself has been ill formed. Should the removal of the two central incisores of the first set be found insufficient to allow of the others coming forward, it is better not immediately to remove the temporary lateral (side) ones, until the permanent laterals are ready to pierce the gums ; and even if these should in their turn require additional room, the temporary cuspidati (eye-teeth) should not be hastily removed, as they are of importance in preserving the natural form of the arch, and should therefore be retained as long as possible.

In regulating the incisores of the upper jaw, however, more frequent examination, and, often, the earlier extraction of the temporary teeth, will be necessary, for the following reasons :—It is to be remembered, that the teeth of the lower jaw close behind those of the upper when the mouth is shut : when, therefore, the *lower* incisores come irregularly, as they almost invariably appear behind the temporary, there is no obstacle in the situation of the upper teeth to their ultimately assuming their proper arrangement when the temporary impediments are removed : but in the *upper* jaw the permanent incisores have made their appearance behind the temporary, and have advanced so far prior to the removal of the latter, as to fall *behind* the lower ones, in closing the mouth, these will of course form a permanent obstacle to their coming forward into their natural situation. From this circumstance, joined to the great comparative size of the teeth

in question, it is frequently necessary not only that the central, but also the lateral, temporal incisores of the upper jaw should be removed. This should, in fact, be done as soon as it can be ascertained that the permanent central incisores are actually coming through the gum, behind the temporary; leaving, however, an interval of a few weeks between the removal of the central and that of the lateral incisores. For the same reasons, the upper temporary cuspidati must, under similar circumstances, be removed, when the permanent lateral incisores are appearing behind them, provided that the loss of the temporary lateral incisores have not afforded sufficient room.

“As the bicuspidēs (small grinders) usually appear before the cuspidati, the loss of the temporary molares (grinders.—See shedding of the temporary teeth), which are larger than their successors, will, in most cases, make room for them and the cuspidati; but, if the latter appear first in either jaw, provided the teeth of the other jaw do not present any obstacle, there will be no occasion to remove the temporary molares until the bicuspidēs are ready to emerge through the gum, and it can be ascertained whether the arch of the jaw will be of sufficient extent for the ultimate regular arrangement of the teeth.

“From the situation in which the bicuspidēs are placed during their formation—that is to say, immediately underneath the bodies of the temporary molares, and encompassed, as it were, by their roots,—these teeth

seldom assume any regular position. When, however, this is the case, the lower ones are generally directed inwards towards the tongue, and the upper take a contrary situation, projecting against the cheek. The temporary molares have, in most instances, lost the greater part of their roots before the appearance of the bicuspidates, although, perhaps, they have not fallen out, or even become much loosened; as they are frequently so firmly wedged between the temporary cuspidati and the first permanent molares, as to form a considerable obstacle to the regular situation of their successors. But whether this be the case or not, still those teeth should not be hastily removed, as they contribute so much to the preservation of the proper expansion of the jaw, and thus reserve the necessary space for the cuspidati; for it certainly often happens, that in consequence of the too early removal of the temporary teeth, already mentioned—under a mistaken idea that this has been necessary, in order to give room to the permanent—the jaw has been allowed so far to contract, that by the time the permanent incisores and bicuspidates have appeared, the space previously occupied by the whole of the temporary teeth is entirely or nearly filled, and there is not room in the arch for the cuspidati, which are consequently driven out of the line, and project forwards in an unsightly and dangerous position. If, therefore, the temporary molares can, without risking the permanent irregularity of the

bicuspidates, be retained until the cuspidati are nearly ready to come through the gum, considerable advantage will be gained by it.

“In all these circumstances, much must, of course, be left to the judgment of the operator, in deciding what may be required by the peculiarities of each individual case.”

By perusing the above, it will appear that the irregularities of the teeth mainly proceed from three causes :— 1st. From a natural want of sufficient expansion in the jaw-bone at the time of their protrusion ; 2dly, from not extracting the temporary teeth at the proper time ; and 3dly, by too early an extraction. The deformities proceeding from these causes are so numerous, that to describe what have come under my own observation, would swell this Treatise far beyond the limits I propose. I shall, therefore, only describe two cases which occurred in my practice, to shew how much may be effected by skilful treatment in removing irregularities which deform not only the mouth, but the whole aspect of the countenance. I shall confine myself to the bare relation of these cases and the methods I used to remove them, without entering into detailed directions for general application—more especially as such deformities can seldom be removed but by skilful practitioners.

Between two and three years ago, a lady, twenty-five years of age, applied to me for advice concerning a great irregularity in the front teeth of her upper jaw ; she had

formed the resolution of having them all extracted and placed upon a gold plate, as is the practice of most dentists in similar cases. I examined her mouth, and found the right central cutting tooth projecting beyond the dental circle more than the eighth of an inch, and the left central one was as far removed from the circle, in a reverse position, inclining towards the tongue, being a distance of more than a quarter of an inch from the extreme cutting edge of one tooth to that of the other; the right and left cutting teeth, and the eye-tooth on the left side, were also irregularly situated, which, by causing the lips to protrude, gave a hideous appearance to the mouth, and although this lady was several years past the age at which it is customary to regulate the deformities of the teeth, the great objection I have to the unnecessary extraction of teeth, induced me to request of her to allow me to try an experiment, the failure of which could be attended with no other inconvenience than delay, as the teeth could afterwards be extracted and placed upon a gold plate, in the manner she originally proposed them to be. She consented; and with the loss of only one tooth, instead of six, and other means which I adopted, the whole were, in less than two months, brought to inflect with the proper curve, to the great satisfaction of herself and family. The lady called on me a few months since, when I found that her teeth were perfectly firm and sound.

In 1824, when residing in Soho-square, I was con-

sulted, by the parents of a young lady, then about sixteen years of age, concerning the irregularities of her teeth. I accordingly examined her mouth, and found that the deformity was occasioned by several supernumerary teeth which had protruded themselves behind and between the cutting and eye-teeth of the upper jaw, thereby forcing the front teeth out of the curvature of the dental circle. By extracting these intruders, the regular teeth regained their proper situation.

I will here introduce a case, to illustrate the want of that anatomical knowledge of the structure of the teeth frequently evinced by some of our fashionable and most favoured dentists. A young and handsome lady, about nineteen years of age, had the misfortune to have the uniformity of a beautiful set of teeth spoiled by the left lateral cutting tooth, in the upper jaw, protruding and, as it were, lapping over the central one on the same side, caused by their crowded state. The family dentist had been consulted on its unsightly appearance, and he recommended the extraction of the tooth thus irregularly situated. The parents not aware of the evils attendant upon the loss of a front tooth, with respect both to articulation and appearance, consented to its removal, which left a frightful gap, attended by the evil consequences above stated. Upon the discovery of the injurious nature of the loss, I was consulted by the lady's father as to whether any means of rectifying the defect could be devised. On examination I found that the cutting tooth

had been injudiciously extracted instead of the first small grinder, at once exhibiting a want of knowledge of the first principle of dental surgery—never to extract a front tooth when it can possibly be avoided (as in the present case it might have been), for upon their symmetry depends the beauty of the appearance of the mouth. In this case, I proposed to fill up the space with an artificial tooth, but this was objected to on account of her youth. No other remedy, that I was aware of, remained; but I in some measure consoled the parents, by remarking, that the inclining of the remaining teeth, for want of their lateral support, would, in progress of time, considerably reduce the space left between them by the loss of the tooth. I saw the lady a few months back, at which time the point of the eye-tooth had nearly met that of the cutting tooth, notwithstanding which a large space still remained between them towards the necks, and destroyed the appearance of an otherwise beautiful set of teeth. Had the first small grinder, instead of the cutting tooth been extracted, the eye tooth could then have been assisted in making a retrograde inclination, and the irregular tooth by being assisted in the performance of a similar movement, would, by its approximation to the eye-tooth, have easily been brought to occupy its proper situation in the dental circle, and the appearance of the front of the mouth would have been entirely preserved; as the loss of the first small grinder, from its posterior situation, could not have been observed.

Of Supernumerary Teeth.

SUPERNUMERARY teeth are so called from their being exclusive of the number required to perfect a complete set. They are not shaped like the proper teeth, being rounder, smaller, and nearly resembling the point of a quill. They generally make their appearance in the upper jaw, about the cutting and eye-teeth, but are sometimes met with in the posterior parts of the mouth. They are always unsightly, and by forcing the teeth out of their circle destroy their regularity and create a considerable deformity. They should always, therefore, be extracted as soon as they are grown to a sufficient length to be laid hold of by the forceps.

Having thus given an outline of the progress and change of the teeth, when the expansion of the mouth and jaws admit of the adult or permanent set to succeed the temporary ones, I shall now proceed to treat

Of the Diseases of the Teeth and their Remedies.

GANGRENE of the teeth is a disease formerly known by the name of Caries, or Rottenness, and is a succession of inflammations in the bone or crown of the tooth under

the enamel, through which it can be seen as a dark spot ; sometimes lines appear between the teeth and on the irregularities of their grinding surfaces ; and sometimes it commences on the neck of the tooth, near to the edges of the enamel, and, unless prevented in an early stage, will have the same destructive effects as when it makes its attacks between the grinding surfaces, leaving the enamel in part or altogether hollow (similar to a nut-shell, that retains its healthy appearance although its kernel is totally decayed) by mastication it breaks away, and a cavity is formed, whereby inflammation or tooth-ache follows as the natural consequence of the exposure of the internal membrane or nerve to any substance coming in contact with it, particularly hot or cold aliments, the effects of the atmosphere, &c., and unless the enamel is supported by some hard substance within the cavity, the whole will break away to the gums, the ragged edges of which it irritates, as it does also the external membrane, thereby producing absorption of the roots and sockets, gum-boils, caries of the bone of the jaw, &c. and is sometimes attended with such violent and continued pain as to be mistaken for the disease known by the name of *tic-doloureux*.

In extreme cases, where the inflammation cannot soon be allayed, extraction of the roots, when loose, should take place, as they are liable, by sympathetic inflammation, to injure the adjoining teeth. On the contrary,

when they are early and judiciously treated, they will quietly remain for years useful supporters to their neighbour teeth.

There are cases, however, in which portions of the bone and enamel decay and break away to the gums, which, although attended with inflammation of the latter, is accompanied by little or no pain, but is followed by absorption of the sockets to such an extent, &c. as gradually to loosen the roots, which being thus deprived of their support, fall away from the gums.

That the teeth are liable to various diseases and to premature decay cannot be denied, but that they are on that account less perfect in their formation or less durable than other parts of the human frame, I am not disposed to admit. The internal and external causes that predispose the teeth to disease are undoubtedly numerous—such as pregnancy, indigestion, fever, the use of mercury, producing inflammation of the gums and of the external membrane, &c.; also loose roots and their ragged edges, the accumulation of tartar, or, indeed, any thing which irritates the surrounding parts, has the same tendency; as has also the too great pressure of one tooth against another, thereby preventing their proper formation; sometimes the pressure of the permanent front teeth against each other is such as to break the enamel, leaving interstices that admit air, and the moisture of the mouth, which is composed of animal and vegetable juices

or substances, the putrefying and decomposing effects of which irritates the bony fibres, and causes repeated inflammations, ending in the destruction of the tooth, as before stated; sometimes the enamel is fractured by biting hard substances, as also by falls, blows, or taking aliments into the mouth when too hot or too cold, the frequent application of injudicious tooth powders, will so destroy the enamel of the teeth, and irritate the gums; as to be a primary cause of inflammation.

When inflammation of the gums, of the external membrane which covers the roots, or of the nerve of the tooth, takes place, the connexion of one part with the other is so nearly allied, that it is wholly impossible the disease can continue for any length of time in the one without communicating its baneful effects to the others. Thus diseases of the teeth are communicated by sympathy, and not, as generally supposed, by the contaminating influence of a virulent discharge, as the latter can never affect a sound tooth. A mistaken notion on this subject, has induced many practitioners to recommend the removal of both teeth and stumps, when, in fact, the former might have been preserved to the latest period of life as useful organs of mastication, and the latter would prove a firm support for fixing artificial teeth upon, so as to preserve the appearance of the visage; both these useful purposes are destroyed by a too hasty extraction, a repetition of which produces hollowness of the cheeks and the approximation of the nose and chin. From prac-

tical experience, I feel confident in stating that the evil effects arising from inflammation may be prevented by timely and skilful treatment in a majority of the cases where extraction takes place ; and that the teeth are not only intended by the All-wise Creator to last for life, but that, with a few exceptions, arising from neglect or unskilful treatment, they are fully competent to that task.

One of the first symptoms of the decay of the teeth is, as before mentioned, when a spot or dark appearance is visible between any of the front teeth (this seldom happens with those in the under jaw). When this is the case, a thin file* should be passed between the teeth up to the gums, as early as possible, which in many cases is sufficient ; but, if the dark spot extends, it must be cut out with the excavators, which is usually performed without any painful sensation whatever ; but should the tooth be so tender as not to allow of the removal of the whole of the dark bone at one time, a bit of lint should be dipped in the sedative (See Appendix), and put into the cavity of the tooth, which will remove all sensibility of the nerve, and prevent the inflammation from spreading further. To effect this purpose, it has been a very prevalent practice, not only in this country, but on the Continent, to introduce, into the cavity of a painful or tender tooth, a *red hot wire*, which is termed cauterizing. This

* See Appendix, under the head "Gangrene, or Caries."

injudicious practice is calculated (as is the introduction of any hot substance) to destroy the bony surface of the cavity, thereby producing a decay of a far worse nature than that which it was intended to remove, and rendering it unfit to receive stopping of any description, from the rapidity with which the cauterized surface becomes dissolved by the saliva ; or it produces a more violent inflammation in the internal membrane, or nerve, and the surrounding parts, which must eventually end in the loss of the tooth, unless timely applications be resorted to.— (*For which, see Tooth-ache.*)—This barbarous practice of introducing a red hot wire, must have originated with some person unacquainted with the nature of bone, or he would have been aware that heat destroys the gelatinous substance of it, and that a less powerful fluid than the saliva would afterwards readily soften and dissolve the cauterized surface.

As the tenderness subsides, a portion of the dark or decayed part should be removed from time to time, until nothing but white or healthy bone is to be seen ;* at which time should the nerve be exposed, care should be taken not to wound it, as considerable pain would thereby be occasioned ; which, however, may soon be removed by repeatedly dipping the lint into the before-named sedative, and filling the cavity therewith. If, after the repetition of the application, relief should not be afforded, a drop of the anodyne cement should be

* This mode of excavation applies to any of the teeth.

put into the cavity of the tooth (*See Appendix*), which, in its liquid state, adjusts itself to the cavity and nerve, to the latter of which, from its healing nature, it acts as a plaster, and also guards it from all external irritants, renewing it from time to time, until the nerve is absorbed, or dies away, which is sometimes accomplished in a few days; but in some cases its absorption, although certain, requires months; after which it may be stopped with the permanent composition (*See Appendix*) or gold*.

The points to be attained in excavating a tooth, are, 1st, to preserve the edges of the enamel round the cavity; 2ndly, to hollow it out in such a manner that the stopping, when in the cavity, should assume, as much as possible, the shape of a cone, the broad end being downwards: 3rdly, Great care should be taken

* "When the bone has become softened by decay to such an extent as to occasion pain on its being pressed, the total removal of the decay would of course expose the membrane, and render it impossible to fill the tooth without producing the most severe pain, and consequent inflammation. Notwithstanding this obvious effect, it is extremely common for persons to fill teeth in this state, either without removing the decayed part—in which case the dead and softened bone is forced into contact with the membrane—or, on the other hand, if the decay has been excised, the gold itself is pressed upon the naked nerve. In both cases the effect is the same. The membrane, in some instances, becomes extremely inflamed, this is communicated to the periosteum and socket, and at length suppuration takes place after long continued and most severe suffering. In other cases, when the membrane is exposed only to a very small extent, symptoms are occasionally produced which can scarcely be distinguished from *tic-doloureux*. If the cause of these attacks be understood in time, they may sometimes be relieved by the removal of the stopping, and by the application of leeches to the gum, and of some soothing remedy to the exposed and irritated nerve."—BELL, 147—8.

that a thin portion of the bony substance of the tooth (even if decayed) should be left to support the enamel ; otherwise, the points of crystallization will inevitably break in. The above remarks being attended to, the cavity of the tooth should be filled with lint dipped in alcohol, or spirits of wine, for the purpose of removing any loose particles of bone that may be remaining in it ; after which it may be wiped out with some dry lint, when the stopping may be introduced, as before directed.

It not unfrequently happens that front teeth (owing to their thinness or want of cavity) are not capable of being permanently stopped. In such cases, the only plan is to remove the decayed part, as before stated, which may be done without danger of injury, and stopped with the anodyne cement until they are no longer sightly, when a renovator (*See Renovator*) may be worn, or the remainder of the crowns be cut or filed off, and grafted.—(*See Grafting, or Pivoting*).

When decay commences on the grinding surfaces of the back teeth, the operation of stopping is easily accomplished, and of certain success. When lines or spots appear through the enamel of the grinding teeth, unattended with pain, it is better to leave Nature to her own operations, as such teeth may last for many years. If an aperture, however, sufficient to admit of the smallest excavator (*See Appendix*) can be perceived, it may be further enlarged by the enamel cutter, and the excavation and stoppage be proceeded with as above ; after which they

will be as useful in mastication, and as free from pain or inconvenience as they were before their decay commenced*.

In difficult cases, it has been the practise with some dentists to extract a front tooth, for the purpose of stopping it with more facility and precision, and afterwards to replace it in its socket, and the tooth, to all appearance, has become firm ; but it only remains so for a short period, and the practice is now discontinued.

Other operations have been tried, but have proved unsuccessful, with the exception of pivoting or grafting the crown of an artificial tooth to the root, after the decayed crown has been filed or cut off; from which two great advantages (prevention of pain and slightly appearance) are derived ; for the pivot, being properly adjusted, answers all the purposes of plugging or stopping, and ever afterwards prevents all possibility of pain from

* "A gentleman has just paid me a visit, who has been my patient since the age of eight. During one of his vacations I saw some incipient disease and stopped it:—Twenty years have elapsed, yet I found the same old stopping which I had inserted in one of the large first double upper permanent teeth, and also in one of the large under double teeth. I have no hesitation in affirming this to be one of the most important and useful operations that can be performed."
—SIGMOND.

"By the beautiful and useful operation of stopping or plugging teeth which are greatly decayed by caries, they may be preserved for many years; in most instances, during the remainder of life; and not unfrequently, from ten to twenty teeth may be preserved by this operation in the same individual."—KOECKER.

"If repeated inflammations be submitted to, a cure will be performed in time, by the stump becoming totally dead."—HUNTER.

that tooth, and, when skilfully performed, is decidedly the most perfect operation of the dentist. For the method of performing this operation well, so as not to cause inconvenience afterwards from pain or swelling of the face, evils so much complained of by those who have unfortunately experienced them, from injudicious practice,—(*See Grafting, or Pivoting*).

Of the Diseases of the Gums and their Remedies.

WHEN inflammation of the gums takes place, which may be known by their unusual redness, tension, pain, and swelling, the first thing to be done is to remove the tartar from the teeth—(*See Discolouration of the Teeth*), should there be any collected ; if, however, there be none, leeches should be applied to the inflamed part between and about the neck of the teeth, which generally has the desired effect. When the inflammation is violent (as is frequently the case after the use of mercury), application should be made to a regular dentist, or surgeon, to unload the vessels of the gums, by a free use of the lancet, which should be inserted between the teeth, and the gums cut perpendicularly down to the sockets, after which a horizontal incision should be made, so that a plentiful discharge of blood may ensue, to encourage which, the mouth should be washed with warm water for a few minutes, and afterwards with an astringent lotion (for which see Appendix, and also for an aperient

to be used at the same time), and sometimes tonics are necessary to complete the cure. The above operation of lancing the gums should be repeated at intervals, which must depend upon the nature of the case and the judgment of the practitioner, until the gums acquire a healthy appearance; but should never be performed until after the cessation of taking mercury, as otherwise, ulcers of a very difficult nature to cure, might result from it.

After bilious attacks, fevers, &c. the gums generally appear inflamed, and bleed on the slightest touch; the teeth also are more or less covered with a mucus and tartar. This inflammation of the gums may often be seen in the mouths of the most healthy persons who have neglected the necessary brushing and cleaning of their teeth, and is commonly called Scurvy of the Gums; but I have reason to believe that such a disease seldom if ever occurs in the gums, except when other parts of the system are scorbutically affected. Such appearances, therefore, are nothing more than a local inflammation increased by an accumulation of tartar, which I have mentioned in the preceding paragraph, and must be treated as there directed.

Of Gum Boils and their Excrescences.

THIS complaint is often the effect of colds, external violence, &c. but is more generally consequent on tooth-ache. It makes its appearance by a painful swelling on

the gums, which extends itself to the face. This swelling if not opened by the lancet, will point and burst, and unless it proceed from a decayed tooth, the complaint then disappears. But I have always found whether the complaint originated in a decayed tooth, or otherwise, the best mode of treatment was to make an early and a deep incision, and to administer sedatives and astringents. Where this treatment has failed, I have always found it necessary to extract the tooth, to prevent more injurious consequences.

Other excrescences also arise, which may generally be extirpated by the use of either the knife or scissors, after which lunar caustic should be applied, and by the application of styptics a cure will generally be effected.

Of Abscesses of the Antrum, or Bones of the Cheek.

THIS disease arises from the same causes as the preceding, being an inflammation which extends upwards to the cavity of the cheek-bone, and also to the eyes, nose, and ears, attended with pain and swelling of the face, and a formation of matter in the sinus, or cavity, which encloses the sockets of the grinders. Sometimes the matter finds a passage between the roots of the teeth to the edges of the gums; but at other times it takes a contrary direction, and passes through the nostrils; in the latter stages of the disease, it tends to point in

the cheek. The cure is performed by giving a free vent for the discharge of the matter, which is effected in two ways; 1st, by extracting the decayed tooth, the removal of the roots of which sometimes gives vent to the pus; but, when this is not the case, an opening must be made by a trocar being thrust through the socket into the tumour. 2dly, In those cases where the tumour does not arise from a decayed tooth, which is seldom the case, the perforation is made through that part of the antrum which projects over the exterior part of the grinders. As soon as the matter is discharged, a plug should be introduced into the perforated part, which should be frequently removed to allow of the matter passing out, and to admit astringent solutions of bark, &c. to be frequently injected into the cavity, when, if the bones are not carious the cure will soon be effected.

Of Tooth-ache.

THIS distressing pain is so well known as to require no other description here than its causes and their remedies. Extraction is, unfortunately, supposed by many to be the only remedy for this tormenting evil; but I can safely affirm, from the extensive practice which I have had from my youth to the present day, that the cases in which extraction is necessary, are, indeed, very few. Upon this point I am aware that I am at issue

with one (and perhaps all) of the most scientific practitioners of the present day ; but as this work is not written with the intention of arguing on abstruse points with the faculty, I shall merely give an outline of the causes of this excruciating pain, and recommend, with the confidence resulting from many years' successful practice, a different system from any hitherto practised.

Mr. Fox says, " It is not in our power to alter the laws of nature, or change the natural constitution of man ; We can only obviate evils by attending to the causes which produce them ; and it is in this manner we can, in a very great measure, preserve the teeth from disease."

One of the most important and distressing results from the causes alluded to by Mr. Fox, is the tooth-ache, which is an inflammation of the nerve of the tooth, or of the external membrane, common to the roots and sockets. This arises from caries, generally perceptible to the eye, although sometimes found lurking between the teeth : however, when it cannot be perceived by the eye, it may be discovered by striking the tooth with a metallic instrument, as the end of a pair of forceps or scissors ; the effect of which increases or renews the pain for an instant, thereby pointing out the seat of the disease. Tooth-ache also proceeds from cold, pregnancy, diseased constitution, or whatever predisposes any other part of our frame to inflammation. Hence the nerve and blood vessels being exposed by the caries removing part of the bone of the

tooth to the effect of the atmosphere, or any external irritant, whether arising from mastication or other cause, produces the tooth-ache. In inflammations of the nerve, the vessels being expanded from an increased circulation, and confined within the bony chambers which contain them, not having sufficient room is the cause of that agonizing pain, surpassing an attack of a similar nature in any other part of the frame which is not so confined.

On examining the cavity of a diseased tooth in a state of inflammation, the nerve may be plainly perceived to have risen out of its chamber. In this case the use of the anodynes, as recommended in appendix, will remove the pain by causing the inflammation to subside, whereby the nerve returns to its original extent. If, after this period the cavity be skilfully stopped or plugged as I have before recommended in cases of caries, the tooth may remain serviceable for a number of years, if not for life, without pain or inconvenience.

Persons unacquainted with the nature of the teeth after obtaining relief from the tooth-ache, very frequently, if not indeed generally, neglect to take the proper precautions to prevent a recurrence of the evil from a dread of reproducing the pain from which they have just escaped, but this cannot arise from using the preparations recommended in appendix. The neglect of resorting to the remedies there prescribed will be attended with a return of the violent paroxysms from which they have been previously relieved, unless indeed the nerve should have

been wholly destroyed by suppuration in the first attack, but which I think rarely occurs, and the pain frequently ends in the swelling of the gums and face, of which I have treated under the head of gum boils—and it will then become necessary for the decayed tooth to be dressed as recommended in appendix.

Another common cause of tooth-ache arises from a decayed tooth breaking down to the edge of the gum, the latter being swelled from the effects before alluded to. In this state the abrupt edges of the tooth presses against and irritates the gums, so as to cause small red tumours or excrescences, which falling over the abraded edges of the tooth into the cavity, and, particularly in the act of mastication, pressing against the nerve, in conjunction with the pressure of the excrescence against the edge of the broken tooth, gives rise to inflammation of the nerve and its surrounding parts, which is accompanied with the most excruciating pain. These excrescences must therefore be cut out of the cavity with a pair of scissors, and caustic applied to the part, as mentioned in appendix.

After repeated inflammation, the nerve and vessel of the tooth sometimes emit blood and matter, and in this stage of the disease the pain is not so violent as in the preceding ones; but these appearances depend entirely on the state of the gums, the health and constitution of the patient.

In young persons, however, the tooth-ache is some-

times occasioned by the cutting of the wisdom teeth ; the inflammation of the gum arising from the protruding of which, extending itself to any diseased tooth, if such there be in either jaw, causing the pain. On all such occasions the gums should be repeatedly lanced, as recommended under the head of TEETHING, which will not only relieve the pain, but allow a free passage for the protusion of the coming tooth, paying attention to the diseased tooth in the way described in appendix, "*Tooth-ache.*"

Suppuration of the nerve or external membrane at the point of the fang, is the consequence of the absorption of the roots and sockets, and which of course must end in the loss of the tooth, and is the forerunner of gum-boils, as stated in the article "Gum Boils." An early attention to the use of the anodynes recommended in the appendix will, in all cases previous and in many cases subsequent to suppuration, ease the pain, prepare the tooth for plugging, and preserve nine out of ten of the teeth which are now doomed to premature extraction ; unless, indeed, its antagonist tooth be wanting in the opposite jaw, as in this case, sooner or later, the tooth will be lost for the want of the stimulus the antagonist tooth would have afforded it, a defect which should always be remedied as soon as possible after extraction, by substituting an artificial one ; not only for utility in mastication and articulation, but also to give the natural stimulus just adverted to (so essential to preserve teeth in a

sound state), and for want of which, however sound the tooth itself may be, the external membrane of it soon becomes relaxed and its loss is inevitable; and should the tooth at this time be in a state of inflammation, it acts by sympathy upon the others as before mentioned, and the adjoining teeth are thereby endangered.

*Of Plugging or Stopping the Teeth and the Substances
Used for that Purpose.*

THE beneficial effects of skilfully plugging or stopping the cavities in decayed teeth are so universally admitted, and frequently adverted to in this treatise, as to render it unnecessary to comment on it here.

Of the substances used for this purpose gold is generally acknowledged to be the best, where the cavity will admit of its being introduced and retained; but the skilful preparation and using of it, is not so generally known as is imagined by many: nor can gold in a multitude of cases be used for the purpose. Other metals are also used, as lead and tin foils, silver and platina leaf, &c. All of which are highly objectionable, owing to the rapidity with which they are oxidized, and being washed by the saliva into the stomach, where (as Mr. Bell justly observes) they “may materially disorder it,” thus losing the proper proportions or dimensions, become so reduced that the cavity in which they may have been inserted

will no longer retain them. To obviate this difficulty a variety of expedients have been resorted to, among others, a fusible metal, the nature of which is described by Mr. Koecker, in page 395—as having been recommended by Mr. Fox.

In justice to the memory of Mr. Fox, I must be allowed to say that Mr. Koecker has misrepresented him, for he merely states (Fox's *Natural History*, part II. page 148); that the method described had been *recommended to him* by a chemical gentleman, and that it promised to be successful. However, Mr. Koecker, in the observations he subsequently makes, very properly objects to the effect of the heat attendant upon the operation, when performed with the fusible metal there spoken of, as tending to destroy the vitality of the tooth; *but* Mr. Koecker has evidently formed an erroneous idea when he asserts that the fusible metal, recommended to Mr. Fox, on being poured into the cavity in its expanded state, will, as it cools, contract and leave interstices for the reception of foreign matter, &c. as the contrary is fully established to be the fact, and is known to be so by all men of science acquainted with the qualities of this particular metal.

In addition to the substance above alluded to, there are a variety of mineral succedaneums, amalgams or mixtures of mercury or quicksilver, zinc and other metals, used for the same purpose; and which are daily

advertised as being far superior to gold, under various names ; such as adamantine-anodyne, &c. These deleterious cements have made more havoc in the mouths of those who have suffered themselves to be cajoled into the adoption of them, than could possibly be conceived by persons unacquainted with the circumstances. I have various specimens in my possession of the different kinds of stoppings now in use, which, fortunately for the sufferers, the shape of the cavity admitted of my removing from the teeth, while labouring under extreme pain, owing to the defective nature of the substances, and thereby restoring them to comfort and utility, by stopping them according to my uniform practice. These cements are applied in a fluid state without heat or pressure, and a part of the mercury which keeps them in that state being imbibed by the absorbents into the system, or evaporated by the heat of the mouth, becomes hard ; (fortunately for many persons, however, a great number of these kinds of stoppings never acquire consistency owing to their falling out) but with such as remain the moisture of the mouth, more particularly when acid fruits, &c., have been eaten, influences the Galvanic action of the metals combined in these cements, and thereby not only the exterior surface is oxidized, but the whole becomes a corroded mass, and in cases where the nerve has previously been exposed, I have generally found the cement a corroded black mass, staining and destroying not only

the tooth it occupied, but more or less its adjoining neighbours, and attended with a most offensive smell. A great proportion of the oxidized matter being washed away, the remainder of the cement becomes honeycombed, as it were, and the atmosphere, &c., penetrating through the pores of this mass to the nerve, and (from the irritating nature of the compound) pressing upon the nerve, causes an inflammation frequently more violent than that it was intended to cure; and when the cavity happens to be well formed, there is great difficulty in removing the offending substance, the pain being so agonizing that few are able to endure it, consequently no alternative remains but to extract the tooth.

That some of the above cements have not given temporary relief, I do not mean to contend, but the attention I have given to the treatment of the teeth, and to which after a regular medical and surgical education I have devoted my whole study, which enables and authorizes me safely to say, they do not possess the virtues attributed to them in the advertisements of those, who, with the self-conviction of the want of every grade of the requisite knowledge to remedy a diseased tooth, have ventured to adopt the profession of surgeon-dentists to which they have in no way the slightest pretensions; and by blazoning forth the assumed merits of these specifics, have obtained a notoriety which has enabled them to practice, not only on the credulous, but even on those who

ought to have been aware of it*, and by which some of them are said to have acquired fortunes.

In the early part of my practice, it was the custom to extract all, or nearly all, unsound teeth that could not be stopped with gold or foils, from a dread of their communicating their diseases to the other teeth. As I decidedly dissented from the arguments used in support of this practice, I was led to the consideration of trying experiments of other substances for supplying the defect, so as to prevent the loss of so many teeth by extraction: In the pursuit of this object I was fortunately assisted by a general knowledge of chemistry, and received still further aid in my researches, by having the uncontrolled access to my father's laboratory, which had been used by him and his ancestors in the prosecution of that science for some generations. After repeated experiments which were attended with great expence, and a work of time, I succeeded in forming a combination of substances the qualities of which were not so liable to oxidation as any which had then, or to my knowledge have since, been discovered ;—and whose invaluable properties are such, that although used in a state of fluidity in filling

* One of the most eminent surgeons of the present day had the cavity of a tooth filled by one of the above named substances. In a few months it became porous, and the tooth was attacked by a violent pain, but it being next to impossible to remove the stopping without the most severe suffering, he was reluctantly obliged to consent to its extraction.

the caries or cavities of teeth, it neither possesses nor requires a degree of heat that can in the slightest way injure, much less destroy, the vitality of the bony fibres of the tooth (as is the case with the fusible metal), not causing any pain whatever to the patient, or be otherwise attended with those evils which are concomitant to the insertion of any of the other stopping substances before adverted to. It also possesses the quality of completely filling the cavity, and insinuating itself into the most minute irregularities to be found there, and of almost instantaneously acquiring a consistency which renders it artificially sound and competent to all the purposes of mastication, without the shadow of possibility of any of the dangerous consequences attending oxidation or corrosion resulting from it. In addition to which, it possesses the merit of being removeable at pleasure after years of servitude at a moment's warning, without pain.

I did not introduce my discovery into my public practice, until after I had tried its efficacy first upon one of my own teeth, and subsequently on some of those of my intimate acquaintances. The results of which were quite satisfactory.

The following is a statement of my own case. The last molar or grinding tooth of my mouth having been affected by caries, and the crown of the tooth considerably decayed with its enamel broken in the center of the irregularities of the grinding surfaces, early in 1821, without the least perception of pain, I filled the cavity with

my own composition, where it remained till the latter end of 1830, and I never experienced the least inconvenience from it. Being at that time desirous of ascertaining the state of the cavity and of the composition by means of a solvent I prepared for the purpose, I took it out, and to my great satisfaction, although nearly ten years had elapsed since its insertion, I found that it exhibited no appearance of being oxidized, and that the bone had not made any further progress in its decay, I then stopped it again and in that state it now continues a useful organ of mastication, and had been before during the whole time entirely free from pain or inconvenience.

Hundreds of similar cases have since occurred in which my composition has been used, all of which have given the most entire satisfaction.

Of the Apparent Discolouration of the Teeth.

THIS is an evil which ought carefully to be avoided. De Chermant says, p. 5, "Of those parts which enter into the composition of a beautiful person, there can be no doubt but that the first place belongs to the teeth and the eyes; and if these latter are denominated the mirror of the soul, the teeth may be considered as the thermometer of health, and the principal ornament of the face."

That teeth become yellow or dark is well known, consequently they are then no longer an ornament, and

require the treatment of a skilful dentist to restore them to their pristine beauty. This discolouration is caused by the natural mucus of the mouth, and the particles of food remaining about the teeth, together with the secretion of salivary calculus or tartar, by which the teeth are incrustated, sometimes forming such dense concretions as to appear like a mass of bone, which generally gives such an offensive taint to the breath as can scarcely be endured at the distance of several yards*. When this substance is allowed to remain, it insinuates itself between the teeth and gums, irritating and inflaming the latter, as well as the external membrane that covers the roots. An absorption of the roots and sockets follows this inflammation, and is indeed the most common cause of loose teeth, by causing the gum to recede from the necks of the teeth, whereby they are in a great measure deprived of their natural support. This tartar must be removed by the aid of instruments, which is the operation called "scaling the teeth;" but as few persons can remove tartar from their own teeth, particularly when

* When the disgusting effects of its accumulation are considered, it would appear impossible that any persuasion could be necessary to induce persons to obviate so great a nuisance, even on their own account; or if they are too debased to procure their own comfort and cleanliness at the expence of a very little care and trouble, they surely have no right to shock the senses of others, who possess more delicacy and propriety of feeling than themselves. Yet so it is; and the sight and the smell are alike constantly outraged by the filthiness of people, who seem to obtrude their faces the closer in proportion to the disgust which they occasion.—BELL, p. 199:

the concretion is great, and the teeth, in consequence, are very loose, a dentist should be applied to ; after which any person may prevent a repetition of its incrustation, as small particles might be chipped off, by the aid of the instruments contained in the case, the uses of which are described in the Appendix. The mode of performing this operation is to apply the instrument to the incrustation at that part of it which joins the gums, and break it off by forcing it upwards towards the edge of the tooth. Where considerable force is required to remove it, the tooth should be supported by placing a finger of the left hand upon the edge of it, to prevent its being shook or loosened by the operation. The same process should be performed on all the teeth requiring it, and the operation should be repeated as often as tartar collects ; as a small portion of it prevents the gum from embracing the neck of the tooth. When all the tartar has been removed, the teeth and gums should be well rubbed with a brush charged several times with the absorbent dentifrice mentioned in the Appendix ; and this should be repeated every morning without being alarmed at the bleeding of the gums which may follow the operation for the first few days, such bleeding being always beneficial, as it removes any local inflammation that exists, and renders the gums firm and healthy if the practice is persevered in. The teeth should afterwards be washed and again brushed with a cleansed brush, after which they should be wiped with a soft linen cloth on the outer and inner

surfaces, to remove any adhesion or mucus that has not been removed. When the above operation has been carefully performed, the teeth will be found to be restored to their natural pearly whiteness, which was before only obscured by the tartar. I mention this latter circumstance, because I feel convinced that there are many persons who think that the dingy appearance of their teeth proceeds from the decay of the enamel, and under this impression the incrustation is suffered to increase until the tooth, deprived of its support, falls out of the mouth in a sound state, to the astonishment of the person deprived of its services, who, unable to account for the occurrence, generally, but erroneously, attributes it to scurvy of the gums—a disease which, as before remarked, I do not believe to exist in the gums, unless the system be affected generally. Indeed, if it proceeded from scurvy, the disease would remain after the loss of the tooth; a circumstance which rarely, if ever, happens.

A great prejudice appears to exist against the practice of scaling the teeth, an operation which is generally admitted to be necessary to their preservation, as well as to their restoration, when incrustated with tartar. Many patients of mine have mentioned to me that they had acquaintances who attributed the loss of teeth to having had them scaled. That such a thing might happen, is not improbable, where the operation is carelessly performed. By this remark, I do not mean to say that the dentist can possibly injure the teeth by the operation, but by performing it carelessly; that is, when the incrus-

tation is not wholly removed, the portions of tartar remaining present a more rugged surface, and consequently forms a better foundation for a fresh accumulation than before its apex formation was destroyed. The substance that is constantly depositing itself around the teeth, making a lodgment for its reception upon the gums, which, to be better understood, I shall call eating of them away, and thus the re-accumulation of the evil is more rapid than at first ; and, finally, the loss of the teeth follows precisely as if they had not been touched. The instructions I have already given, however, if perseveringly followed up,—namely, by removing any particles that may have either accidentally or carelessly been left by the dentist, or that may have afterwards accumulated ; and carefully and regularly brushing them with the dentifrice, and washing them, will obviate these consequences. I shall here take the opportunity of quoting the remarks of an author, who wrote upon this subject some years ago, and states as follows :—“ Cleanliness of the teeth is to the eye what purity of the breath is to the sense of smelling. Nothing is more pleasing than clean, white teeth, and gums of the colour of the rose ;—nothing more disagreeable than foul, black teeth, thickly encrusted with tartar ; this sight alone is sufficient to excite disgust, the most beautiful face being repulsive, if the lips, when they open, exhibit the slovenly spectacle of neglected teeth.”

Having thus demonstrated not only the advantages of,

but the positive necessity for, a particular attention to the suggestions I have adduced, in order to prevent the discolouration of the teeth, it may not be superfluous to add, in conclusion of this part of the subject, that, to such persons as cannot procure the prepared dentifrice, I would recommend the use of common chalk in preference to any other unprepared substance; the daily use of this simple from childhood, and occasionally lancing the gums, as I have before mentioned, would, I am convinced, be attended with such beneficial results, as to preserve the teeth of the lower orders many years longer than they at present generally enjoy them, if not to the end of life. The principal cause of the diseases of the teeth and gums in such persons proceeds from a want of cleanliness, and not from the habit of eating highly seasoned meats, ices, &c. It is, nevertheless, highly necessary for persons desirous of preserving their teeth by dentifrices to be careful in their choice of them, as those which are commonly sold under the recommendation of beautifying and preserving the teeth are generally compounded of acid or gritty substances, both of which destroy, although they improve their appearance for a short time: the former thins the enamel chemically; and the latter wears it away mechanically*.

* The use of charcoal, finely pulverized, for cleaning the teeth, was formerly recommended by very eminent men, who, subsequently, from

It may here not be immaterial to state also, that the indispensable article of the brushes, used in cleansing the teeth, are worthy observation, as they are of different shapes and textures. Those, in my opinion, best adapted for this purpose, are formed narrow at one end, and have long hairs, or bristles, which, however, ought not to be too closely set, lest the water should be prevented from passing through, to remove the impurities they collect in using. I would also recommend the use of both hard and soft brushes, making a distinction in the use of them. For example, I use a hard brush to my teeth and gums in the morning, for the purpose of removing any accumulation of improper substances that may have formed during the night, but a soft one at any other time, as the too frequent use of a hard brush must have the effect of irritating the gums, although, when used but once a-day, it renders them firm and healthy. I have also a brush differently shaped, with a bend from the handle, the hair arranged in a small oblong square, which is better adapted for the interior of the teeth than the one generally used for the exterior. It

a conviction of its injurious tendency, publicly denounced it. The fact of charcoal's being used by many artists for polishing their work, evinces its operation on the teeth; as is the case with pumice-stone, brick-dust, soot, &c.; for all substances having the power or tendency to polish, must necessarily wear away the surface on which they act, and, as respects the teeth, soon wear away the enamel, and in time entirely destroy it. Under the appellation of charcoal, therefore, may be included all calcined substances.

is usual for most persons to pay more attention to the exterior appearance of their teeth than to the interior parts ; whereas, in fact, it is in the latter, that tartar, * &c. concretes, more especially behind the cutting teeth of the lower jaw and the exterior parts of the grinders in the upper jaw.

Of Loose Teeth.

WHEN teeth are loosened by external violence, such as falls, blows, &c. they may, in most cases, be again fastened by pressing them firmly into their sockets, where they must be supported by ligatures to any of the adjoining teeth that are sound. The patient must also be confined to spoon meat till they become firm ; to effect which, astringents must always be used ; and in some cases aperients also will be necessary ; for which, see Appendix. But if their looseness proceeds from the incrustation of tartar, it must immediately be removed, lest absorption of their roots, and the sockets in which

* Tartar is an earthy concretion from the saliva, mucus, &c. of the mouth, which, at its first appearance, is soft, and may easily be removed ; but if allowed to accumulate it acquires a hardness nearly equal to the teeth itself, of which, to an inexperienced person, it appears to form a part, but is in fact no more so than the *fur* (as housewives term it), on a tea-kettle, is to the metal on which it collects. It is of various hues, but is generally of a buff, dark brown, greenish, or black colour.

they are placed, should occur and the loss of the tooth or teeth become inevitable. Even when absorption of the roots and their sockets has partially taken place I have been fortunate enough to fasten them by cutting the gum down to the socket on each side of them; and by immediately applying a powerful astringent the gum has afterwards more firmly embraced the tooth. This operation requires in many cases to be repeated, and must be followed by strict attention to the daily use of the brush, applied freely to the gums as well as to the teeth with the astringent dentifrice, for which see Appendix.

Of Extracting the Teeth.

MY experience in this branch of the profession has been great, having been in the habit of performing it, from a very early age, as that department of my father's practice generally fell to my lot. I have been compelled, against my individual opinion, to extract hundreds, nay, I may say thousands, of teeth, which, I am certain, might have been beneficially retained, for a number of years, by having recourse to the plan which I have adopted since I came into practice for myself, which is now upwards of ten years. My increasing experience daily confirms me in the justice of the opinion I had early formed of the too prevalent adoption of this injudicious practice; sometimes indeed professional men are compelled to extract teeth from the obstinacy and impa-

tience of the sufferer, and sometimes the necessity of the case imperiously demands its adoption. In the latter case the best mode of doing so has been so ably described by various writers on this subject, and is otherwise so generally known, that I do not deem it necessary to say more on this branch of dentistry, than that I give the preference to the forceps, as the most competent instruments for the extraction of teeth, in all cases where they can be safely applied.

As to this subject being considered of slight importance, and unworthy of eminent practitioners, if any man in his senses can really deem it so, it is scarcely worth while to attempt to confute him, by supporting a contrary position. How much more humane and honourable must it be, for any competent professional gentleman to extract a tooth when necessary, and afford relief to a patient, than, by refusal, or omission, compel him to resort to incapable operators, who, failing to complete their undertaking, leave, perhaps, the fangs of the tooth to be subsequently removed, or other serious injuries to be remedied?

Of Artificial Teeth.

It has frequently been observed to me that the teeth were less perfect in their structure than any other part of the human frame ; but this opinion I have always dissented from, being firmly convinced that the teeth are go-

verned by the same laws which regulate and govern other parts of the system, and are therefore not more liable to disease. I have endeavoured to demonstrate in the foregoing pages, that by proper attention to the primary cause of disease (namely, inflammation of the bony part of the teeth, as well as the nerve and surrounding parts), in nine cases out of ten, a sufficient number of them would be preserved to answer all the purposes for which they were given by our all-wise Creator, to an extreme old age. Many unavoidable causes, however, concur to deprive us of their valuable services, such as accidents, uncontrollable diseases (comparatively few); but above all, the misfortune of falling under the hands of unskilful operators, who sometimes recommend their extraction, either from the interested motive of supplying their places with artificial ones, or from a want of the necessary skill to arrest the progress of the disease with which they are attacked, or some times both the last mentioned causes combine to deprive us of those useful and ornamental organs *. To the above causes may be

* In consequence of the complete, or even partial, ruin of the teeth, the face shrinks, the voice loses its harmony, becomes shrill, or is lowered, and the pronunciation, of course, very imperfect. The countenance assumes a different expression; is harsh or morose; the flesh of the cheeks will flag and hang down; wrinkles will prematurely furrow the face, the dimensions whereof are no longer the same as they were. The mouth and nose also change; the chin seems to be longer, and in reality approaches nearer to the latter organ; in short every part of the face is discomposed in a more or less offensive degree, and presents the anticipated sight of painful destruction.—JERBAUX.

added the eager precipitancy of the patients themselves, who, unfortunately, frequently insist on their extraction, from a mistaken idea of there being no other remedy to avoid the excruciating tortures they are suffering.

Having thus pointed out the causes which occasion the loss of the teeth, we now come to treat of the necessity of supplying their places with artificial substances, not only to prevent the derangement of the features, but also to restore the powers of mastication and articulation. De Chemant, page 8, says, "When the teeth are lost it is impossible to make use of solid food, and if the stomach is then loaded with pieces without being masticated, the person is exposed to the most distressing indigestions. The stomach loses its power of contraction, and it becomes weak in proportion as it no longer digests. We can only then remedy that state of languor which is the consequence by replacing teeth in lieu of those which are lost. Nature, which makes nothing in vain, would not have provided us with teeth if they had not been essential to us.

"Although the gums, after the loss of the teeth, may with some persons, to a certain degree, become hard; as the natural position of the jaws only permits the alveolar edges to touch, the aliments can only be slightly and difficultly pressed between the gums; in vain, in eating, the jaws attempt to meet; there is nothing but useless efforts, attended with contortions and grimaces which by degrees disfigure the face. Artificial teeth

prevent all these inconveniences, and those made of mineral paste serve for mastication, as well as the natural.

“Teeth are essential for the formation of articulate sounds ; those who have lost their front teeth speak with hesitation, or lisping ; artificial teeth remedy also these inconveniences, and likewise those involuntary jets of saliva when one speaks with volubility.

“ Nature, which is as fertile in effects as she is economic of causes, makes use of teeth as an embankment against the overflowing of the saliva, phlegm, and other humours, with which the mouth is often filled. Without them persons who have the under lip more or less falling, and who want teeth, would let the saliva escape, a circumstance as distressing to themselves as it is disagreeable to those who approach them. Artificial teeth alone can protect us from this disgusting inconvenience.”

Much labour and ingenuity have been bestowed on the construction of artificial teeth, which are now, from the precision of fitting at which a few dentists of the present day have arrived, found to answer all the purposes required, to the satisfaction of the wearer, and even beyond all former anticipations.

On the fixing of Artificial Teeth.

THE mechanical art of fixing and fitting artificial teeth may now, in all probability, be considered as perfect as

human nature can devise. It is not likely, however, that any of my readers will attempt to make and place teeth in their own mouths, nor is it my intention to instruct those of my own profession through this medium, I shall merely give an outline of the process of fixing as now practised by the most scientific dentists as well as myself.

A model of the mouth is first taken ; after which the number of teeth required are either constructed in one solid piece, so as to resemble both the teeth and gums, or separate teeth are rivetted on bone, or a gold plate, which has been previously fitted to the model. The teeth fixed on these plates are, according to the expressed wish of the wearer, natural or human, derived from dead bodies ; animal, or those which are made from the enamel of the tusk of the hippopotamus, or sea-horse, or the porcelain commonly called mineral or terro-metallic ; and this completes the whole process which is more or less serviceable and convenient to the wearer, according to the skill of the artist in adopting them to the formation of the mouth, and the anatomy of the jaws, the natural action of which is little, if at all, understood by some of our most fashionable dentists, as the following case will illustrate.

A lady of distinction informed me that she had had two pieces, consisting of five teeth each, successively placed in her mouth within eight weeks by one of the

most favoured dentists in London, but that both of them were destroyed in a few days after they were placed, owing to the pressure of the jaws, and wished to know whether it was in my power to prevent a repetition of such disasters. On examining her mouth I perceived that the cause arose from a want of anatomical knowledge of the jaw, and proper uses of the back teeth *. With the exception of the right eye-tooth, and the first small grinder on the left side, she had lost the whole of the teeth in the upper jaw. In the lower jaw she had lost the antagonist of the small grinder, and the six large ones consequently had only two small grinders on the side of the front teeth, and one on the other. The back teeth being all lost, the pressure upon closing the mouth fell upon the eye-tooth on the one side, which thereby became considerably worn ; on the other side the small grinder evaded the pressure, by falling into the space left by the loss of its antagonist ; hence the whole of the pressure of the jaws fell upon the five artificial teeth in the front of the mouth, and the consequence was, that in less than a month, the first *set* was broken, as were the second in about the same period, when she applied to

* With regard to the action of the teeth of both jaws, in mastication, we may observe, once for all, that their action and reaction must be always equal, and that the teeth of the upper and lower-jaws are complete, and equal antagonists, both in cutting and grinding.—HUNTER, p. 69, edition of 1771.

met†. To prevent a similar occurrence I recommended her to have the upper and lower back teeth replaced in conjunction with the front teeth, which she approved of, and the equilibrium of the action of the jaws being restored, no accident has occurred since that period, which is now upwards of three years, during which time they have given every satisfaction, as the lady herself has very recently informed me. The above error is one that is too generally fallen into, by inexperienced and consequently inefficient operators, denominating themselves dentists ; but how such an oversight could have taken place in a gentleman of high professional reputation, of upwards of twenty years standing, is not so readily accounted for.

On examining the mouth of such persons as are furnished by nature with a well placed and complete set of teeth, we find the front teeth of the upper-jaw projecting over those of the under-jaw,—a regulation of nature wisely adopted for more easily separating the substances requiring to be divided ; any exception to which, for example, in cases where the front teeth precisely meet, the cutting edges of each other, or where the front teeth of the under jaw project beyond those of the upper, in which case the person is said to be underhung (*see irreguluri-*

† The premature loss of this lady's original front teeth, arose from the partial loss of her back teeth, by reason of which the pressure on the fore part of the mouth was so great, that the front teeth became loose, and finally dropped out, as is commonly the case when the whole or part of the back teeth are lost.

ties of the teeth), and is not only unsightly, but, particularly in the former case, where the edges of the teeth meet perpendicularly, causes the premature wearing away of the teeth, even to the gums, so situated, especially after the back teeth have been lost. This projection of the front teeth deviates gently from that line backwards on each side until the crowns of the large grinders and wisdom-teeth directly fall upon each other. Hence in the act of mastication, when the lower jaw is dropped to commence the performance of that operation, the grinders in that jaw are forcibly drawn forward out of their quiescent situations, and when the jaw is again raised, as it is in the second motion, the teeth in returning to their natural position encounter the food requiring to be masticated, and (in their retrograde motion) reduce it to small particles, which action is called grinding.

By the great friction of mastication, the teeth of some persons gradually wear each other away in a very perceptible manner. Some are worn pretty nearly upon an equality all around, while in others, from a habit of chewing on one side of the mouth, the teeth, which are in constant use, become so reduced in their crowns, as to cause a pressure upon the front teeth, almost equal to that which follows the total loss of the back ones. A case of this description occurred in the course of my practice some time since. The patient, a gentleman of high respectability, informed me that he had, some years

before, consulted a dentist on the occasion of several of his teeth being loose, and others wearing away from the unequal pressure they sustained from his having lost the chief part of his grinding teeth. The dentist to remedy the evil, supplied the places of the latter with artificial ones, to equalise, as he said, the pressure. The idea was correct, but his execution was faulty. The teeth which he had substituted never answered the purpose for which they were intended, owing to their having been from their first fixing too short to meet their antagonist teeth, consequently they failed in giving the least relief to the pressure in the front of the mouth. Nor did the evil rest here, the useless incumbrances placed in his mouth were fastened by clasps or collars to his remaining teeth (a most injudicious practice, although a pretended improvement), which rather increased the instability than added to the support of the teeth, and caused irritation whenever a sufficient quantity of food accidentally became placed between the grinding surfaces of his own teeth and those of the artificial ones, which, of course, was avoided as much as possible, owing to the pain it occasioned. The most superficial observer of the structure of the teeth must be aware, on reflection, that the small extent of socket occupied by one, or even two, artificial teeth, cannot, owing to a want of extension in the socket or foundation of resistance to the great pressure consequent on mastication, be borne by one patient out of five thousand. To remedy the defects complained

of by this gentleman, I recommended him to allow me to cap or cover the back large grinders and to half-cap the small front grinder with a thin plate of gold, so as to cause their surfaces to bear their due proportion of the action of the jaws, and to prevent its converging to the front of the mouth. He acceded to my proposition—I removed the clasps, and by making him a plate on a more extensive scale, which embraced the four grinding teeth in the following manner, namely, a cap for the large grinder at the back extremity, two artificial teeth of my siliceous pearl, of a sufficient length to remove the inconvenience complained of, as they now meet the surfaces of their antagonist teeth, these I rivetted on the center of the plate, with a half-cap on the front extremity for the remaining grinder, by which means the pressure became equally divided and restored to its original state, and he has since expressed himself in terms of the greatest satisfaction, as, by the removal of the clasps, he no longer complains of the irritation or loose state of the neighbour tooth occasioned by the action of them.

I might here cite a multitude of cases in which I have employed the system of capping the teeth with gold with perfect success ; but I shall not here trouble my readers with a multitude of cases of intricacy, more especially as the readers cannot of themselves execute them ; I shall, therefore, only state that this plan is calculated (where any back teeth are remaining) to sup-

port all the modifications required by the loss or abrasion of the teeth, without the necessity of extracting either them or their roots to accomplish it. In cases of the abrasion of the front teeth, as mentioned before, caused by the wearing away of the grinding surfaces of the back ones, nothing more is necessary to prevent the symmetry of the teeth from being destroyed, than to cover and fit accurately their indentations with a plate of gold, which, according to its thickness, will equalise the pressure on the front teeth.

In the fixing of artificial teeth, however, there are some cases, more particularly in the under jaw, in which the irritation of the gums is such, that metallic plates cannot be endured in the mouth of the patient; in such cases the artificial teeth, of whatever substance they may be composed, as dictated by the choice of the wearer, must be fixed upon beds or sockets formed of the sea-horse bone, &c., so as to fill up the vacancies between any two contiguous teeth which are firm in their places, and these are attached to them as circumstances admit, by silk or gold ligatures*, clasps or collars, and springs, all of which modes are objected to by many; the fault, however, rests upon the inaccuracy of fitting the part, for, if the artificial teeth be made too large, they press the other teeth out of their natural

* The custom of wearing ivory teeth tied with ligatures, is very ancient. Lucian and Martial speak of it as being practised amongst the Romans.

situation ; and, if too small, the natural teeth approximate towards them, causing, in either case, the adjoining teeth to which they are attached to become loose ; hence arises the prejudices of many to the use of artificial teeth ; but to explain myself fully on the evils of neglecting to supply the loss of a single tooth by artificial means, would swell the present work beyond its intended bulk, and would, by many, be considered tedious ; suffice it, therefore, to say, that the loss of one tooth is certain to be followed by the loss of its antagonist in the other jaw, if not by two, the number immediately affected by its loss in mastication from the collision of the teeth in performing that office, for the teeth work not (as commonly supposed) in pairs, but a tooth in one jaw acts upon the half of two teeth in the other jaw, consequently, the loss of one tooth causes the improper action of two teeth, which it before resisted, thus giving healthy action to the vascular properties, for the want of which natural stimulus the teeth and sockets become diseased, and thus the first loss is followed by the total disorganization of the symmetry of the teeth, which is as surely followed by a distortion of the countenance. On the loss of a tooth, therefore, I earnestly recommend that its place be occupied, as soon as circumstances will admit, by substituting an artificial one, to prevent, not only the evils above spoken of, but also to hinder the remaining teeth on each side, from approaching each other in an oblique

direction, which they most assuredly will do, unless kept in an upright position by artificial support, and render them less efficient, if not altogether useless, in the act of mastication. It requires little calculation, therefore, to discover how soon thirty-two teeth may be destroyed, when we consider how materially four or more teeth are injured by the loss of one.

But to return to a description of the different modes of fastening artificial teeth practised by different dentists; I shall first consider the customary method of tying them with silk or gold ligatures, which appears to be the most ancient mode known, and is used by many dentists at the present time; but I am decidedly adverse to the use of ligatures, because of the necessity that exists (in order to secure such teeth in their places) of drawing them so tight, that the natural teeth are often loosened by the operation, added to which, the wearer finds a difficulty to tie them without assistance, when removed for the purpose of cleansing. Collars are equally objectionable from their dragging and impulsive effects. In the commencement of my practice I saw the inconvenience and disagreeable consequences resulting from both, and applied myself to remedy these defects; this I have partly accomplished by a kind of half collar for the inside of the tooth, which, without the liability of being perceived, as clasps or collars are, does, by its elasticity, in a great measure prevent the jarring effects produced by mastication or removal. But of all the modes yet invented for the fast-

ening of artificial teeth I prefer that of capping, where it can be done with propriety. This is done by casing the natural teeth in the vicinity of the defect, by which means the plate for a single tooth, or more, may be extended to a sufficient distance, so as to prevent the appearance of any gold spring or other fastening from being observed, and to obviate the pain arising from pressure on the gums produced by plates of small dimensions.

There is another method of fixing artificial teeth which has been much advertised as possessing the properties of "Capillary attraction and pressure of the atmosphere," or, as others term it, "the attraction of cohesion." This mode is not new, although professed to be, but it can only be performed by the best artists; nor can it in reality be successfully applied in more than a few cases, and where the gums are naturally of a sufficient depth, &c. to support the quantity of bone necessarily required to complete an upper semi-circle. Its adhesion depends upon the accuracy and extent of surface with which the artificial bone-piece is made to fit the corresponding part of the mouth. Indeed, the ease and utility of artificial teeth, in all cases, depends upon the accuracy of the fitting, whether adhesion be required or not. I frequently fit to the full extent of this principle when required so to do by the caprice of my patient, but I never recommend it when my judgment is consulted, particularly in the upper jaw, and in this respect I am strongly inclined to suppose that the scientific part of

the profession (although few) agree with me. My objections to depending on it are, that in adapting pieces to the upper jaw, such a quantity of bone must necessarily be retained in the mouth as to cover the greater portion of the palate, and consequently produces a defective taste together with an invincible impediment to articulation. In many instances (more particularly where *complete* upper pieces are applied) the defects above complained of are rendered still greater by the frequent occurrence of the piece becoming displaced in conversation, but more particularly in oratorical displays, where the delivering long sentences is almost certain to produce this disaster, or at least to require a continued and disagreeable practice of suction to retain it in its place. I have known it to be ejected from the mouth in a violent fit of coughing. Those who recommended this mode of fitting have become so well aware of the defects above mentioned, that, to avoid these disasters, they have latterly adopted the practice of forming in the bone, of which the frame or sockets of the artificial teeth is composed, a projecting piece of the same material in the form, and answering all the purposes, of a clasp or collar; but this is a mere subterfuge to evade the imputation of employing metallic fastenings, and is much more clumsy.

Of the Grafting or Pivoting of Teeth.

I HAVE before stated the benefits to be derived from the skilful grafting or pivoting of teeth, instead of the

dangerous practice of transplanting them (*See remarks in the next page*). To prepare for the performance of the operation of pivoting in a perfect manner, the first care should be to ascertain the constitution and state of health of the patient, in order that any predisposition to inflammation in the system may be discovered; because, if that should be the case, and the nerve of the tooth be not previously destroyed, it will be necessary to prescribe the use of aperients and attention to diet for several days previous; and should the gums appear in a spongy or inflamed state, they should be lanced repeatedly, until they appear to have acquired a healthy state, which is known by their being pale and firm, and not bleeding from brushing. This precaution is only necessary in a few cases where the nerve is in a state of great susceptibility, as otherwise the operation is not attended with pain or inconvenience when performed by a skilful operator. When any of the front teeth are decayed or otherwise disfigured beyond the art of the dentist to restore them to their pristine state, they must be either nipped, sawed, or filed close to the gums, and if at all tender, it is the practice of many dentists to destroy the nerve which remains in the root, by introducing a hot wire, an operation both painful and dangerous from the repetition which is required to produce the effect. The plan I adopt is different, being effected by the rules prescribed for tooth-ache (*See Appendix*). After which a pivot is

screwed into the crown of the artificial tooth*, the crown or pieces having previously been nicely fitted to the roots from which the crowns have been cut away, and the pivot being introduced into the canal, lately occupied by the nerve, supports the crown of the tooth which thus displaces the decayed one, and, when well executed, joins so neatly as to defy the penetration of the most scrutinizing observer. This operation should always be submitted to before the decay extends to the gums, as the roots may then be preserved and made serviceable for years.

Of the Transplanting of Teeth.

THE excellent practice of grafting or pivoting of new crowns upon the roots of decayed front teeth, is now so generally adopted, as to have nearly, if not wholly, exploded the practice of transplanting teeth†. In addition to which it may be properly advanced, that the innumerable objections transplantation is liable to, impresses all inquirers on the subject with such an abhor-

* This is always the practice when human or ivory teeth are used. The siliceous pearl ones, as before stated, have their pivots more securely fastened, being always soldered in the substance.

† There appears, *prima facie*, to be some ground for apprehension, that infectious diseases may be communicated by this operation; and on this account it may with propriety be deprecated, even were it in every other respect perfectly successful and unobjectionable; which, however, is far from being true; many cases of severe, and not a few of even fatal, results, are on record. On consideration of which I cannot avoid denouncing the operation as dangerous, and in the present state of our information, the operator who performs it is either grossly ignorant or unprincipled.—BELL, p. 168.

rence of the practice, as to render it extremely difficult to find a person who with a knowledge of these objections could be induced to submit to it*.

Of the Substances of which Artificial Teeth are composed.

THE first dentist who had the good fortune to succeed in discovering a mineral paste as a substitute for the putrescible substances then, and, unfortunately still, in use, was De Chemant—he says in his Dissertation on Artificial Teeth, pages 1, 2, and 3, “ In 1788, when I exercised the profession of a surgeon, I was consulted by a lady who had fallen into such a state of weakness as produced considerable fears for her life. On approaching her I perceived a tainted odour which I thought proceeded from her lungs or her teeth, which were black ; I examined her mouth, and was struck with the bad state of a set of human teeth, implanted on a base of the tooth of the hippopotamus. This set of teeth being removed, I perceived her mouth to be almost entirely covered with small ulcers, and I had no doubt but that her disease was the effect of the putrid exhalations which proceeded from the set of teeth, and which corrupted the air she breathed ; what confirmed this conjecture was, that after having laid these teeth aside, her health improved in a few days.”

The putrescible substances from which artificial teeth

* Transplanting is the operation of completely extracting a tooth from its socket, and inserting another in its place, either from a living person or a dead subject.

have heretofore been generally made, are those of the teeth of the sea-horse, the elephant, and human beings —on all of which the saliva, assisted by the heat of the mouth, acts with such power as quickly to change their colour and dissolve their gelatine, after which they turn of a dark or black hue, their substance becomes soft, emitting a mixture of *gases* of the most offensive effluvia, and finally putrifies, melting away, and mingling with the saliva. Thus it becomes necessary to supply a succession of teeth, which occasions reiterated trouble and expense every two or three years, according to the constitution of the wearer, who sometimes destroy them in less than twelve months, notwithstanding their handsome appearance when first placed in the mouth. The Siliceous Pearl Teeth, on the contrary, never change their colour, are incorruptible, and will last for life.

It is universally known, that all dentists have been in the habit of using the crowns of human teeth taken from dead bodies for pivoting, and also for fixing on gold and other kinds of plates or bases, and De Chemant, pages 30 and 31, says, "A dentist of Paris had an opportunity of obtaining such teeth as he wanted from a person who attended the hospital called the Hotel Dieu. One day he took the teeth of a young man who had died of the small-pox ; these teeth were washed and infused in spirit of wine ; they were afterwards fixed upon a base of the sea-horse tooth ; but notwithstanding these precautions, these teeth inoculated the small pox, to

the Baroness of W——. The disease was particularly violent about the mouth, which disfigured her so much that she could scarcely be recognized." He then makes the following remark, "The use of dead teeth can only be attributable to ignorance or cupidity, because they do not require that skill and dexterity which is requisite to prepare artificial ones."

If the pains taken to purify the human teeth used in the disastrous case above cited (and where they did not even come immediately in contact with the gums but were fixed upon bases made of the sea-horse ivory) were insufficient to prevent infection, how much more liable to convey it must those teeth be, that are not so carefully prepared, which is seldom if ever done? when, therefore, we consider such melancholy results arising from such apparent remote causes, we may well shudder at the idea of uniting a perhaps contagiously infected crown to the natural roots of our own teeth, thus as it were inoculating ourselves with diseases, which are rendered more especially certain by the edge of the gums being more or less abraded by the operation, and consequently open to receive the seeds of infection from whatever source it may be conveyed.

To reconcile persons to the use of human teeth, they are led to believe that those used for this purpose are procured from healthy men slain in battle. This, however, is not the fact; but even if it were, the teeth of persons suddenly expiring must be very unfit substances, as the

blood, settled in the vessels of such teeth (as is always the case when persons are suddenly deprived of life) soon causes them to turn black ; and there is no way of restoring their whiteness, but by bleaching them, which can only be done by frequently dipping them in water, and exposing them to the atmosphere, whereby their enamel becomes cracked, appears streaked, and can be of little use to the dentist ; because, if the enamel be cracked, the pivot, which is screwed into the bony part under the enamel, for the purpose of fastening them, breaks the tooth ; a circumstance that has frequently happened to me when in the act of drilling or enlarging the hole in a tooth, for receiving the screw. When human teeth do not break in the drilling, they are frequently known to break in the mouth, and fall out, from the moisture insinuating itself (more particularly through the cracks in the enamel) and softening the bone, until it reaches the drilled reception for the screw, which is thus rendered incapable of retaining the pivot—indeed, this consequence is a natural one, and needs no further comment, as it is well known by every day's experience, to be the fact.

The teeth, however, which are used, are generally obtained from persons within the meridian of life (as those of old people are too dark, and seldom free from decay.) The most delicate are such as are taken from young females ; but even these are not healthy. Young people do not die without causes, such as fevers, consump-

tions, malignant and epidemic diseases, which makes it both dangerous and unpleasant to use their teeth. Indeed, the collectors of these articles never study the cause of the death of the party from whom they are taken : fortunately, however, such persons can have no further claim to support from the public now that a perfectly impenetrable and indestructible article can be obtained. But if recourse be had to any of the means of obtaining teeth before recounted, is it not shocking to the feelings (in addition to the probable consequences before adverted to), that such teeth should only find a sepulchre in the seat of taste—the very mouths of our most delicate females ? Every argument in support of their use, while a far superior substitute is at hand, must fail, when placed in competition with these disgusting reflections—and will, it is to be hoped, stimulate every professional gentleman to use his best exertions to put an end to their abominable use.

As I deem the bare perusal of the preceding extracts from De Chemant, and my own observations, amply sufficient to convey conviction to the understanding of my readers of the deleterious effects of using animal substances of any description for artificial teeth, I shall not insult them by presuming to guide their choice in the selection of the article they may be desirous of substituting for their own lost teeth, but I cannot forbear to notice the prejudice which, I have recently been informed upon good authority, is attempted to be instilled

into the minds of the public, by some fashionable professors of dentistry at the west end of the town, against every species of improvement in artificial teeth; and who have deprecated, *in toto*, all those composed of mineral substances. As far as I am able to comprehend, this opposition can only arise from the total inability of the parties to make a mineral tooth of any description; and their incapacity as to fixing them, although the latter is one of the simplest branches of the department. Indeed it would seem that their principal art lies in inducing patients, by unfounded assertions of advantages, to wear teeth made from animal substances, which they can readily procure workmen to make, or those taken from the dead; and that patients, without reflecting that all such substances are quickly destroyed by the great dissolving power of the saliva, and the nauseous decomposition carried with it into their own stomachs, are so operated upon by the misrepresentations of such persons, as not only to countenance, but even to take them into favour, and promote their views. The reflecting part of the public, will, nevertheless, readily admit the necessity of, and give the preference to, mineral teeth, although contrary to the interested efforts of such gentlemen; and to an equal degree of certainty, select those minerals, the superior advantages of which have been tested by long experience. It is also probable that means may be used by the persons before referred to, for the purpose of biasing or prejudicing public opinion, by

attaching to the siliceous pearl teeth effects that they are not liable to: such as their liability to break in the act of mastication, an accident which is, in fact, almost impossible to occur, from their indestructibility. Such an objection is scarcely worth replying to. I have never known an instance of the kind happening to a tooth fastened in the secure manner in which mine are—a fastening which no other substance for the formation of artificial teeth, yet discovered, can endure. This, indeed, may be asserted with truth against other mineral substances, as the “terro-metallic,” of which I have proofs in my possession, from patients who have had their places substituted by my siliceous pearl. The terro-metallic teeth, although advertised as being made in England, are all manufactured in France, and are here fixed and called by various appellations, since the successful introduction of my siliceous pearl; but the pivots (gold or platina) of the French mineral teeth are so slightly fastened to little more than their surfaces, that a very trifling pressure will cause them to break away from their fastenings*. The siliceous pearl, on the contrary, are so combined with the substance, of which the teeth are composed, one end of the pivot being passed entirely through the substance, and there soldered to it, forming as it were

* Such is also the case more especially with human and ivory teeth; they soon corrupt or separate either from the base or the pivot; owing to the holes in which they are screwed becoming too large, from the substance of the tooth being dissolved, as before stated, by the saliva.

one body, while the other end of the pivot is soldered to the gold plate, or bed, which rests upon the gums, that there never can be any movement of it, by which it can possibly bend or break. In fact, all the objections that have or can be made to mineral substances, I have had the good fortune to overcome by my invention—as the teeth composed of it can not only be made to match any shade of colour* which the neighbouring teeth may require, but can also be made in sets to assume and retain the appearance of the most beautiful natural teeth and gums, without possessing any of the rough and unpleasant feelings to which the most superior of all other mineral teeth are subject; but, as I have before observed, they are fitted with all the precision and solidity necessary to render them both comfortable and useful, and as such may be fully depended upon, advantages that teeth supplied by any other dentist do not possess.

— The siliceous pearl possesses all the following qualities :
1st. That it is composed of indestructible fossiles, and never contracts on being vitrified in a furnace after having been accurately fitted to the model of a mouth.—2dly. That it can be made to imitate all the appearances of the natural teeth (or gums† if requisite) in their transparent qualities

* All other mineral teeth are limited to a very few colours.

† “The loss of the teeth causes the sinking down of the gums, proceeding from the absorption of the alveolar processes (sockets); from this arises the deformity of the mouth; it is not possible to

and shape, and is, in short, the *desideratum* so much required, but never before attained, both in the material of the composition and their natural appearance.—*3dly.* That the texture of the mineral is such that it will polish with a mill similar to a gem, and although not frangible by any common force, is, nevertheless, capable of being fitted with a precision equal to any other substance.—*4thly.* That it cannot be acted upon by any acid, the *fluoric* excepted, and that it withstands all the effects of the blow-pipe in soldering and of the instruments used in rivetting.—*5thly.* That it possesses in an eminent degree the properties of an enamel, throughout its entire substance; and, when abraded, which can only be effected by grinding on the hardest stone, presents a perfectly smooth surface.—*6thly.* That it will assume any shape and colour required without alteration, for any length of time.—*7thly.* That it is incorruptible, either from the effects of saliva, heat of the mouth, or any action to which it is subjected in the performance of the operations for the especial purpose of which I invented it.

After saying thus much, it is unnecessary to add, how totally impossible it is that any offensive odour can ever

remedy this with teeth of animal substance, since gums of a natural colour cannot be added.” On the contrary—“With mineral substance we have the double advantage of being able to substitute artificial gums, and to give them a durable colour resembling nature.”—**DE CHEMANT.**

“After the teeth are gone, the face is shorter, while the mouth is shut, by almost the whole lengths of the teeth in both jaws; that is about an inch and a half.”—**HUNTER.**

arise from it; in fact, I have studiously endeavoured to discover any defect it might possess with a view of remedying it, but I have not been able to find in it a single imperfection.

In attaching to the "siliceous pearl teeth" that perfection which I have dilated upon, with some degree of pride, I must confess, resulting from an happy issue to my incessant application and laborious research, I am aware that I subject myself to the various charges of egotism, conceit, &c. I am also aware, that "*mere assertion*" is not proof. To these charges I answer, that my practice and experience have sufficiently satisfied me, and every one I have operated upon, without a single exception, of the correctness of my positions; and as "*mere contradiction*" is no more proof than bare assertion, I invite all such as have any hope of maintaining the contrary positions, to accompany their observations with as strongly corroborative circumstances as I have adduced in support, and the question will be then fairly at issue; the result of which I shall encounter with the greatest pleasure; founded on my present conviction, that it must be in corroboration of my assertions.

At the period of perfecting my inventions, I submitted them to some of the most scientific and learned gentlemen of the faculty, and I have had the satisfaction to find the results of their inspection meet my wishes. To their testimonials to this effect I have called the reader's attention in the beginning of this work; in addition to which, I

consider their entire approval and adoption by so great a number of the higher and more respectable classes of society, may be referred to as a proof of their entire success.

I have in my possession specimens of all the different materials and substances of which artificial teeth have been made for the last fifty years; both such as have been used in the mouth (the decomposition of which will excite wonder) and such as have not. All of which are open to the inspection of the curious, at my residence.

Of the Teeth Renovator.

“He who pays no attention to his teeth, by this single neglect, betrays vulgar sentiments.”—LAVATER.

MANY persons who object to the operation being performed of grafting or pivoting their decayed teeth, from the fear of pain, or for other reasons, are yet very desirous of appearing to possess good teeth—whilst others, who are sufficiently able to masticate their food with the teeth they possess, exhibit so repulsive an appearance as to induce a similar desire. In order to effect this highly desirable object, I invented the renovator, which is made of the same materials, and possesses all the good qualities of my artificial Siliceous Pearl Teeth.

This renovator is so constructed as to act on the front teeth as a mask does to the face, and gives them all

the appearance of health and regularity. It can be slipped on or off in a moment; and adheres perfectly secure without any fastening, being made upon the principle of precise adaptation to every interstice of the teeth and gums which it embraces. It can be made to any shade of colour—is of a delicate appearance, not being thicker than parchment—cannot be distinguished by the most scrutinizing observer from the person's natural teeth, covering every imperfection of them, or discoloured artificial front teeth, and, with a little care, will last for many years. In cases where a tooth or more are lost, they can be included, in the formation of the renovator, so as not only to restore the articulation, but the appearance of the intermediate teeth.

In conclusion it may be necessary to inform my readers, that while I fit artificial teeth of all substances, according to the desire of my patients, in the most scientific manner, by means of a machine of my own invention, which obviates the uncertainty of depending upon the hands alone for the fitting of artificial teeth and pallets with accuracy, I also prepare the composition and form the Siliceous Pearl Teeth in all difficult and complicated cases (for which purpose I have furnaces of great power erected on my own premises) and am enabled to adapt them with a greater precision and resemblance to nature, than when the several branches are performed by different hands.

A few years ago the author submitted the machine (above mentioned) for accurately fitting artificial teeth, to the inspection of two eminent dentists, who were pleased to favour him with the subjoined letters:—

“ Sir,

“ I have examined the model of your instrument for producing greater accuracy in fitting of artificial teeth, and I think it must be very useful, especially to those who have tremulous hands.

“ Yours, truly,

“ JOHN HEATH.

“ Mr. Scott,

“ April 21, 1828.”

“ Dear Sir,

“ Your little machine, which I inspected yesterday, seems to be a very well-constructed thing for the purpose, and, I have no doubt, will be very acceptable to any practitioner who finds occasion for such.

“ Yours, truly,

“ SAMUEL MINSHULL.

“ J. Scott, Esq

“ Tuesday, April 1828.”

APPENDIX.

THE *formula* of the various medicines required in the operations directed to be performed in the course of the work will be found in the following list, and can be procured at any apothecary's shop, with the exception of those marked with an asterisk thus (*), which, with the instruments necessary for the same purpose, may be had *separately* of the author, at his residence, 6, Lower Grosvenor-street, Grosvenor-square, London; or in *Cases*, provided with anodyne cements, tinctures, stoppings, dentifrices, &c, &c., together with the various instruments and brushes necessary for performing operations on the teeth, which are arranged for the convenience of medical practitioners, heads of families, ladies' toilettes, or persons travelling. In each *Dental Case* will be found two different coloured siliceous pearl teeth as specimens of the author's own make, together with the following:

- * THE DENTAL MIRROR, (marked *a*)—This is a concave glass, for inspecting the interior of the mouth, into

which it is easily admitted, being small ; by means of which, and standing in front of a looking-glass, the observer can perceive the state of the interior circles of the teeth, and perform any operation they may require (within an individual's power.)

FOR GANGRENE, OR CARIES.

- * FILES.—The files to be used in this operation are of two kinds, both of which are extremely thin, being little thicker than a watch-spring. One of them is armed with teeth on one side only, the other side being smooth. This file is to be used when the side of one tooth only is affected by the above disease. The other file is armed with teeth on both sides, and is used when the sides of two adjoining teeth are affected. The latter file is also used to separate the front teeth of young persons, when, at about the age of fifteen or sixteen, they appear to press too closely upon each other. Two other files for removing ragged edges of the teeth or fangs will also be found in the case.
- * EXCAVATORS (marked *b.*)—Of these there are five in each large case, and in each small one two, which will be found sufficient for individual use ; they are so formed as quickly to point out to the discerning operator their separate uses—being concave, sharp-edged, and adjusted for scooping out the unsound

bone in different directions from all parts of the cavity.

* ENAMEL CUTTER (*c*).—This is a round tapered file, which acts upon the enamel by a careful compressive and rotatory motion, and is to be used for enlarging the orifice of the cavity, when wanted, for stopping.

* PERMANENT COMPOSITION, OR CEMENT (marked with a figure 1.)—After excavating the unsound tooth according to the directions laid down in page 25, should the tooth feel tender—(See *Tooth-ache and Tender Teeth*), proceed as the instructions for that disease point out;—but should the contrary be the case, after the cavity is perfectly dried with lint, light the small lamp (*d*) and take the copper bowl instrument (*e*), which will be found filled with the composition (1) and warm it over the lamp sufficiently to soften it, which is almost instantaneously effected, as, similar to wax, it only needs softening—not liquifying; then, with the scoop (*f*) a sufficient quantity for filling the cavity of the tooth should be taken up at one time, and, if the situation will admit of it, be pressed into the tooth with the finger. If the position of the cavity of the tooth be such as not to admit of the foregoing process being performed, the composition must be taken out of the warming bowl with the spatula, (*g*) in the best manner that the case will admit of, for filling the cavity,

which, if in a tooth in the upper jaw, the patient must not only lean back, but must also allow his head to incline downwards. Great assistance will be rendered to the operator by using one of the four instruments (*h* and *i*) warmed in the composition contained in the bowl instrument. Having by these means filled the cavity (taking care that it be not over filled, which will be discovered by the point of the antagonist tooth coming in contact with it; in that case the overplus quantity must be removed, and the remainder made even on the surface with the spatula warmed as before directed in the composition) after which the surface ought to be smoothed with a cold instrument (*h*) to prevent any lodgment or adhesion of food, &c. The cement will be immediately fit for masticating the hardest substances. Should it afterwards be discovered that every interstice has not been perfectly filled, the surface of the composition should be wiped dry with lint, and a warm instrument again applied to it to press it more firmly into the interstices that before escaped the operation. Sometimes, however, it will be found necessary to apply the solvent (2) which in the course of a few hours will reduce the composition to a soft mass, when, if in a tooth in the upper-jaw, it will fall out of itself—or if in the under-jaw, it can be easily taken out with one of the excavators,

and with the same facility as any other soft substance. If, however, it should be required to remove it immediately, the surface of the composition must be covered with the solvent, and an instrument slightly warmed being rubbed upon it, the composition becomes liquified and mixes with the solvent, when it can be instantly removed. After which, if the tooth be not tender, the stopping can be proceeded with as before, until it is perfectly accomplished*. The crowns of some teeth are affected with gangrene in more parts than one, in which case each cavity must be treated as before directed. When gangrene or caries attacks two adjoining teeth, the difficulty of stopping both, may sometimes render it necessary to extract one to save the other; to discern justly the necessity of proceeding to this extremity, however, requires much skill and experience.

FOR TENDER TEETH AND TOOTH-ACHE.

* SEDATIVE TINCTURE † (3).—When a tooth is exter-

* By excluding air and moisture from the cavities of decayed teeth, we preserve the remaining fibres of the bone from inflammation, and, consequently, from decay.

† To distinguish the use of this tincture, I have called it, in the course of the work, Sedative Tincture for tenderness of the teeth, and Anodyne Tincture for tooth-ache; both names are applied to the same preparation, for the purpose of showing that it possesses both properties.

nally or internally attacked with inflammation, (both of which I shall treat of under one head, as requiring the same remedies, although attended with different degrees of pain, according to the different stages of the disease and the height of inflammation), it is generally discovered, by a tenderness being felt on their touching each other, or on their being pressed with the finger, without any visible sign of gangrene; in such cases the nerve, or the external membrane is doubtlessly inflamed, although no pain be felt, and the gums should be lanced on each side of the affected teeth down to the sockets, being first careful to remove the tartar, if any; after which, thirty drops of the Sedative Tincture in a tea-spoonful of water should be held in the mouth to the affected teeth, three or four times a day, and the lancing repeated at the interval of a week, which will remove the tenderness. If the Sedative Tincture be applied mixed with as little water as possible, that is, as strong as it can be borne in the mouth, the lancing of the gums may often be dispensed with; but when tenderness arises from a gangrenous tooth, which is internal, being an inflammation of the fibres of the bone near to the nerve, take a bit of lint (the film only which should be carefully deprived of any fibres by scraping), dip it in the Sedative Tincture, and dress the cavity with it five or six times a day, as the

more frequently it is used, the sooner the tenderness will be removed, taking care that a fresh bit of lint be used each time, after which the process of *stopping* may be proceeded with as directed under the head of *Permanent Composition*.

* ANODYNE TINCTURE* (3).—When gangrene is so extensive as to destroy the bone so that the nerve of the tooth is exposed, the pain arising therefrom, is called tooth-ache.† In this case the lint and tincture must be applied as above directed, with this difference only, that the application must be repeated every five minutes during the violence of the paroxysm, and then not to be pressed in, but laid as lightly in the cavity as possible, which generally removes the pain in three or four dressings. The removal of this pain, however, depends, in a great measure, upon the care with which the remedies are applied. The smallest fibre

* See the preceding Note.

† The sympathetic affections to which it gives rise, are exceedingly various and important; though it is only of late years that they have been properly understood, and the attention of medical men directed to their true source. Now, however, that these remote sympathies have excited a degree of interest more commensurate with their importance, so frequently are they found to occur, that practitioners are, on the other hand, in danger of attributing to this cause diseases which have not the remotest connexion with it. It not unfrequently happens that parts the most remote become the apparent seat of pain, from the exposure of the nerve of a tooth. I have seen this occur not only in the face, over the scalp, in the ear, or underneath the lower jaw, but down the neck, over the shoulder, and along the whole length of the arm.—BELL

in the lint will irritate the nerve, and cause, rather than allay, pain. Care must also be taken that no tartar be on the tooth, and that no particles of food or decayed bone remain in the cavity, as, in that case, the tincture cannot reach the nerve, nor consequently, have the desired effect. I recommend, when retiring to rest, that the dressing, *with fresh lint each time*, should be repeated two or three times successively, as the powerful effects of the tincture is frequently weakened by the flow of saliva. If it can be borne, the cavity should be dried each time with a bit of lint affixed on the end of a small metallic probe. After the pain has ceased for a day or two, the stopping of the cavity may then be proceeded with as above directed. If in the first attacks from tenderness, or tooth-ache, or swelling of the gums, *immediate* recourse be had to the tincture, it will assuredly remove it; but if, on the contrary, its application be delayed, it is often necessary, in addition to the above process, to lance the gums as before described, or three or four leeches should be applied to the gums at the neck of the painful tooth, or teeth. In obstinate cases, aperients, emetics, and fomentations to the face over the affected tooth, or even blisters under or behind the ears, anodynes, internally administered, tonics, and, in nervous and rheumatic cases, rubefacients also may be required, according

to the state of the sufferer's constitution, who should be restricted to a spare diet.

- * ANODYNE CEMENT (4).—This preparation is of a mild and healing nature, as before stated, and inflammation may always be allayed or prevented by the judicious use of it or the sedative tincture, both of which possess antiseptic powers as well as sedative, especially the latter; but, for a wounded nerve, as in mastication, the former possesses the most healing power, after the irritation has been allayed for a few moments by the application of the tincture. On the slightest tenderness being felt, therefore, the tincture should be had recourse to, as the vessels of the bone of the tooth, from the density of their structure, cannot again restore themselves to health, but will inevitably die away; after which, if the sensibility of the nerve be very great, as from exposure it frequently is, a drop of this cement should be introduced (with the scoop *f*) into the cavity of the tooth, as it not only soothes, from the nature of it, but, by acquiring consistency, and adjusting itself to the nerve, it excludes the atmosphere, particularly if a bit of lint dipped in the cement be placed on the end of the probe and put over the cement already in the tooth; after which, the patient should, with the tongue, or a wetted finger, gently press it down, to secure the filling of the cavity and an even sur-

face. This dressing should be repeated every day, or every second day at farthest, particularly if there be any signs of blood or matter, as the odour of the latter will become offensive and painful, as any other wound would, whose dressings were neglected ; and should the pus not be allowed to vent itself by this means, it is sure to descend and form an abscess in the gums at the point of the fangs, and there break, as mentioned under the head " Gum Boils," in which case an early use of the lancet, as well as astringents and sedatives, must be applied. The lint can only be removed with the *ternaculum*, or hooked and pointed instrument (*k*) or one of the excavators (*b*) may be used. When the cement is used in preference to the tincture, care should be taken that the quantity of lint should be very trifling, if the cavity be deep and conically shaped ; otherwise, as the cement soon becomes harder, its removal may be attended, not only with trouble, but pain ; to obviate which, another layer of the cement, if the depth of the cavity requires it, should be mixed on the slab (*l*) with the spatula (*g*) with the absorbent powder (5 *) till it attains the consistence of honey, a layer of which should be placed over the lint, which will cause the whole to be more easily removed when required. To render this, if possible, more plain, proceed as follows :—1st, With the scoop, drop into the cavity as much cement as

will cover the nerve. 2dly, Dip a bit of the film of the lint into the cement and cover it over what was previously put in, so as to prevent it and the top layer from coming into contact with each other. 3dly, Cover this lint with the compound (cement and absorbent powder) before named. By following these directions the nerve will soon become healed or absorbed, when, in either case, it can be stopped, as before directed. If any portions of the cement should adhere to the teeth or the fingers, in the performance of the operation, or after, the corner of a napkin, dipped in spirit of wine (6), will remove them. I mention this circumstance to prevent such specks from being taken to be a decay of the tooth, as also to convince the reader that the preparations are perfectly harmless. In superficial decay, where a tooth cannot be permanently stopped, for want of cavity, as is sometimes the case with front teeth, this cement can always be applied; and, if the part be first well dried with a bit of lint (cotton is always injurious), this cement will adhere until the sensibility of the nerve is destroyed. When anodyne or sedative cannot be immediately procured, the following tincture will be found serviceable:—Spirits of camphor, tincture of opium, tincture of myrrh, and compound tincture of benzoin, equal parts mixed.

* ASTRINGENT LOTION (7).—To be used to the gums

after lancing, bleeding, &c. from ten to thirty drops, mixed with a little water, according to circumstances; after bleeding this should be used two or three times a day. For sponginess only of the gums (after being well brushed) once a day will be sufficient. If gum-boils appear, equal parts of the astringent and sedative (3) should be used, as strong as it can be borne.

- * **SCALING INSTRUMENTS** (*m*).—These are to be used as convenience requires for removing the tartar. Their different uses for which purpose will easily be recognised by any intelligent person.
- * **ABSORBENT DENTIFRICE, OR VEGETABLE TOOTH POWDER** (8).—This preparation should be plentifully used every morning with a hard brush, as recommended in page 46, with cold water in summer, but in winter the extreme chill should be taken off.
- * **RUBEFACIENT**.—This is a liniment which should be applied to remove soreness, or swelling, and to alleviate pain. It should be rubbed from the ear along the under jaw-bone, on the cheek, and over the tooth or teeth affected. A bit of cotton well moistened with the liniment should also be put into the ear on the affected side, and should be repeated nightly if required, particularly if the patient be affected with nervous or rheumatic symptoms.
- * **SOLVENT** (2).—This compound is to be used with the

scoop instrument when the permanent composition, used for stopping, is at any time wanted to be removed ; when a portion of it must be laid on the surface of the composition, as directed under the description of PERMANENT COMPOSITION.

CAUSTIC, OR NITRATE OF SILVER.—This is used after excrescences have been cut away from the gums, when the affected part is simply touched with it, to stop the hemorrhage and produce a healthy surface. It is also used in the proportion of one drachm of caustic to an ounce of water, with a camel-hair pencil, when the edges of the gums are exceedingly tender or ulcerated ; and is applied in the same manner to cavities of decayed teeth for several successive days, after excrescences, &c. have been cut away ; after which it must be dressed with the anodyne and sedative. Care must always be taken to remove any cauterized or black surface that may appear in the cavity, or the inflammation will certainly return. After supplying the solution of caustic to the gums the mouth should be rinsed with water.

INTERNAL ANODYNE.—During and after a violent paroxysm of tooth-ache the following mixture, to appease the irritability of the system, will be found serviceable :—Mixture of camphor four ounces, tincture of fox-glove half a drachm, tincture of henbane one drachm, compound spirit of sulphuric

ether two drachms, to which add water sufficient to make eight ounces; one table-spoonful every second, third, or fourth hour (according to the irritability of the patient) to be administered to an adult.

EMETIC.—Take of tartar emetic five grains, mixed in twelve table-spoonsful of warm water, one table spoonful of which must be taken by an adult every ten or fifteen minutes till it has the desired effect.

APERIENT.—Take of Epsom salts two ounces, mix in a pint of water, and take a wine-glass full every two hours till it operates, or two wine-glasses full night and morning, according to circumstances; or the following may answer the purpose better:—Of senna one ounce, ginger one drachm, boiled in a pint of water; to which add two ounces of Epsom salts, and take a table-spoonful every three or four hours.

FOMENTATIONS.—Simple hot water, or infusion of camomile flowers and poppy-heads, may be used as hot as can be borne, applied with flannels to the affected part, but should never be continued above one hour, lest the effect desired be counteracted, and debility, &c. follow.

ADDITIONAL CASES.

THE following cases are a few selected out of the numbers which have been submitted to me, and are striking illustrations of the want of surgical knowledge displayed by many professors of dentistry, furnishing a still further corroboration of what, as I before stated, may be effected by a timely and judicious treatment of the teeth and gums :—

The sister of a noble lord, about forty years of age, who had had several of her teeth stopped with gold by two of the most celebrated dentists in London, consulted me some time ago respecting the continual agony she suffered from them, as they were so tender, she said, that she could not bear to touch them even with her tongue. Suspecting that they had been stopped without the proper attention having been paid to their tender state, I removed their stoppings and dressed them with the sedative tincture, which I directed her to continue in the manner described in page 87, &c. ; she did so for about ten days, when their tenderness and pain being entirely removed, I re-stopped them, since which they have given no uneasiness. She then showed me two

teeth which had been fitted to replace the loss of the second small and the first large grinder of the right upper jaw ; the second large grinder and the wisdom-tooth in the under jaw on the same side were likewise deficient, and no artificial ones had been inserted in their stead. The back teeth in her under jaw on the left side were also gone, and had not been replaced by artificial ones. I was much surprised to find that the only effort to repair all these losses was the fixing of two artificial ones in place of the two teeth on the right side in the upper jaw, and these had been supplied with two human teeth of quite a different description from those which she had lost—the upper grinders having been replaced with two human eye-teeth. The evil consequences arising from such a want of judgment was distressing to witness ; the artificial teeth supplied having no opposites to act upon, instead of meeting the crowns of the grinders, when the jaws were closed, pointed to their outsides, somewhat similar to the cutting teeth in front of the mouth, and thus the whole pressure of the jaws fell on the front teeth. Nor were the crowns of the teeth fitted broad enough (I need scarcely add) either to meet or to bear the pressure that falls to the lot of the grinders to which they were opposed, neither were they long enough to fall into the indentations in the crowns of the grinders in the under jaw (as is related in another case, p. 61), consequently of no service whatever in the act of mastication. If this

was not an act of imposture I know not what is. Such an unskilful arrangement could not fail of destroying the whole economy of the remaining teeth, by causing all the pressure of mastication to fall upon the front ones. The teeth thus fitted had been fixed with gold springs attached to the lady's own teeth, which had caused them to become loose by their dragging and irritating effects, so that, instead of acting as supporters to the remaining teeth, they assisted to effect their loss. I expressed my indignation at the oversight thus committed by one of the most fashionable and supposed skilful dentists in London, who, from his great practice and years of experience, must have known better; but I was requested by the lady not to publish the case (a most extraordinary instance of forbearance in the injured party). I, however, succeeded in convincing her how necessary it was that the case should be made known to the public, in order to warn them how inefficiently some operations are performed in a few minutes, which, to execute skilfully, would require much time; and at last obtained her acquiescence to make it known in the present manner, so that the parties (injured or injuring) could not easily be discovered. At her request I have made her two Siliceous Pearl Teeth, of the original shape of those she had lost, and also a piece for the lower jaw on the left side, and I have no doubt she now finds all the former defects remedied, at least she expressed herself to that effect a few weeks since. The same dentist declared to a physician, a friend of

mine, who afterwards related it to me, that "difficult cases did not pay him;" no, nor *suit his judgment*. I presume this to have been one of them.

About eight years ago a young lady, nearly eighteen years of age, visited me for the purpose of having her teeth inspected. I found that no less than eleven of them were in a rapid state of decay; some of them ached violently and were much broken away. Three of them, that did not ache, I stopped with gold, and would have stopped more had she not refused, owing, as she said, to a prejudice entertained by her father against the stopping of teeth, he having had several stopped, which, instead of being a relief to him, had caused him much trouble and pain. I gave her some of my sedative tincture, with instructions how to apply it to such of her teeth as remained unstopped whenever they pained her, and saw no more of her for four years afterwards. About that period after her first visit she again called on me, and informed me that the teeth I had stopped for her had not only exceeded her expectations, but had even overcome the prejudices of her father and some of his friends, who complained that their stoppings had either fallen out or caused the loss of teeth by extraction, owing to the pain occasioned by the difficulty of removing the stoppings. I then stopped five more for her—three with cement, and two with gold; and about twenty months ago I stopped another, since which I have stopped the remaining two, and received her grateful thanks for the benefits I had conferred upon her by

preserving them. A short time since, however, owing to a severe cold, she was violently affected with an inflammation of her gums, which extended itself to the nerve of one of the large grinders that I had stopped for her four years previously with my permanent composition. This stopping I immediately removed by the application of my solvent, and in the course of twenty minutes, during which I twice dressed it with the sedative tincture, the pain was removed. By taking an aperient, and repeating the dressings according to my directions, it was in a few days so free from pain and tenderness that I was enabled to re-stop it.

About three years ago Mrs. P., nearly forty years of age, far advanced in a state of pregnancy, was for some weeks so violently afflicted with tooth-ache that she became daily more and more debilitated, and her sufferings increased so much that her medical attendant began to entertain fears for her life, as he considered her to be in too precarious a state to undergo the operation of having a tooth extracted; he however recommended her to consult me. On inspecting her teeth I found, on the right side, in the back part of her upper jaw, a carious tooth so much decayed that the nerve was wholly exposed; the membrane, also, was so much inflamed, and the tooth so tender, that she dreaded the least particle of food touching it. A leech* was

* It sometimes occurs that a too copious bleeding follows the application of leeches. In such cases folds of lint, dipped in a very strong solution, composed of alum and water, and laid on the orifices several

applied to the edge of her gum, close to the neck of the diseased tooth, after which the cavity was dressed with the sedative tincture, as described in p. 87, by which, and taking the anodyne mixture described in p. 95, the pain and inflammation was relieved in forty-eight hours, the nerve retracted, and I was enabled to stop the tooth successfully. I saw her a few months after her confinement, when she informed me that she had not experienced any inconvenience from the tooth since it had been stopped, and that she was enabled to masticate with it as well as before its decay.

A gentleman, about fifty years of age, who ranks high in the legal profession, was recommended to me about two years ago for advice respecting his teeth, which were most of them loose, and attended with such pain as materially to affect his health; they had been so for a considerable time. He had applied to several dentists, but had experienced no relief; some of them stating that his gums were in a high state of inflammation, and that any operation would be attended with dangerous consequences; one advised him to wash his mouth every morning with salt and water; this advice he had followed for a considerable time, but found no benefit; another had removed tartar from the outer

layers in thickness, according to the violence of the bleeding, I have never known fail to stop it. In extraction, also, cases of excessive bleeding may be restrained by strips of lint dipped in the above solution being pressed firmly into the socket until the same be completely filled, where it should be confined or pressed by firmly closing the other jaw or teeth upon it.

surface of his teeth ; but nothing that had been done for him had the effect of fastening them or removing their pain. I found his gums in a high state of inflammation, they were of a livid appearance, flabby, and had receded considerably from the necks of the teeth, whereby the latter had become so loose that the mastication of solids was attended with considerable difficulty and pain, so much so, indeed, that the principal part of his diet consisted of spoon-meat. A considerable accumulation of tartar had also been suffered to remain on the interior circles of his teeth, although it was only a few days before that the operation of scaling them had been performed. To the tartar remaining, increased by the use of mercury, I attributed the inflammation and recedure of the gums from the necks of the teeth. I therefore immediately removed the remaining tartar, and then repeatedly lanced his gums perpendicularly to the sockets, after which I applied the astringent tincture (No. 7), and recommended him to continue to use it two or three times a day, which he did for about six weeks, when the gums resumed their healthy appearance, rose again to the necks of the teeth, which they embraced as firmly as ever, with the exception of one tooth that remained loose for a considerable time owing to his neglect, when he again applied to me, and by repeating the lancing of his gums several times I succeeded in fastening it also. His teeth are now perfectly firm in their sockets.

A child, between eight and nine years of age, was sent to me several times for the purpose of having her teeth inspected. I watched the progress of the forthcoming teeth for about two years with great care, and seeing no necessity for extracting any of the temporary ones, I let nature take her own course, and the eight cutting teeth came forth in succession in perfect circular order. The father of the child, however, took her to another dentist, to whom he expressed his fears that the permanent teeth would not have sufficient space for projection unless some of the temporary ones were extracted. The dentist agreeing with the father removed the four eye teeth, an operation which tended to prevent, instead of encouraging, the proportional expansion of the jaw, which attends the growth of the teeth. The consequence of this error was soon apparent ; the first small grinders appeared in their places as usual before the eye-teeth, and inclined themselves towards the cutting-teeth, as did the latter towards them ; by which means the space allotted to the eye-teeth being partly pre-occupied by the inclining or swerving of the cutting and grinding teeth towards each other, did not allow sufficient space for the eye-teeth to occupy their situation properly in the dental circle, and to prevent their unsightly appearance in coming forward like tusks, it became necessary to remove the first small grinders on each side, in both jaws, to make room for them. The father is now fully convinced of his error, as his daughter, by injudicious treat-

ment, is for ever deprived of *four* out of thirty-two teeth allotted her by nature. Thus, by injudicious treatment, has this child been subjected to the torture of having eight teeth extracted, whereas no necessity existed for any such operation.

An elderly gentleman had the crowns of nearly all his double teeth broken in, from the effects of interior and unnoticed decay, and suffered considerable pain from them. Residing at a great distance from London it was inconvenient for him, at that time, to pay me a professional visit, but having had one of my books and a dental case transmitted to him, he managed to stop several of his teeth, although little of them (except a kind of side shell formed of the enamel) remained to hold the stopping, so that it was next to impossible for anything of the kind to remain in them for more than a few months at a time ; by repeating the operation however, when it became necessary, as directed in the work, he has ever since managed to render them perfectly useful in mastication, and keeps them free from pain, without being under the necessity of having recourse to artificial teeth. He lately consulted me professionally, and expressed himself gratified with the benefits he had derived from following my system.

A gentleman of high respectability being attacked with decay in the back part of the first small grinder of the lower jaw, on the left side of his mouth, applied to a dentist, whose popularity has of late years been very

great among the *beau monde*, for the purpose of having the decayed part cut away and the cavity stopped. Thinking himself perfectly safe under such hands the gentleman committed himself with confidence to his operations. The dentist, however, whose original avocation was that of a carver and turner of ivory, instead of only scooping out the decayed bone and then stopping it, actually filed away the sound part of the tooth in an angular position to get at the decay, which he removed, but not without the loss of two-thirds of the tooth, a great portion of which was healthy bone, rendering it impossible at any future time to stop it, as so much of the tooth had been cut away and disfigured that no stopping could be retained in it. The further evil effect of this treatment was, that the nerve of the tooth being now so much exposed was more susceptible of irritation than before, and a violent inflammation of it shortly afterwards took place, which extended to the periosteum or external membrane, forming a large tumour in the gum near to the end of the root of the tooth, from which his face became swelled to such a degree that his most intimate friends could scarcely recognise his features. In this dilemma he applied, of his own accord, a warm poultice to his cheek ; but, finding no relief from it, he consulted a surgeon in the country, where he then happened to be (now about three weeks ago), who condemned what he had done, ordered leeches to be applied to the gums, and an aperient to be taken, which had the effect of removing in part the in-

flammation, and the swelling of the face greatly subsided but not the tumour. Suppuration (a crisis then nearly about to take place, and on which the cure principally depended) was prevented by the leeches, whereas that event would have been much accelerated if, instead of applying leeches, a warm poultice of bread and milk had been applied to the gum and cold applications or the rubefacient to the cheek; but the best remedy would have been, in the first instance, a free use of the lancet and afterwards the astringent tincture would, I make no doubt, have removed the affection. Finding little benefit, however, from what had been done for him the gentleman has now put himself under my care for the removal of the tumour and tenderness of the disfigured tooth. This is the third tooth this gentleman has had filed away by the same dentist (instead of being only excavated and permanently stopped), and this professor has had the care of the gentleman's teeth from his childhood.

About twelve months ago a young lady, nearly eighteen years of age, was brought to me by her mother, to have her teeth regulated. The lady stated that she had consulted a gentleman generally esteemed to be one of the most scientific dentists in London, two years ago, for that purpose, but he had declined undertaking the case, alleging that the young lady was past the age at which teeth were usually regulated. Another dentist, who is considered a very eminent, and is certainly a very fashionable one, undertook the case, but had put the

young lady to such repeated torture that she was unable to endure it any longer ; after which I was consulted, when I found that the young lady had a very pretty shaped set of teeth, the appearance of which were spoiled by the cutting teeth in the under jaw overlapping or projecting beyond the four cutting teeth in the upper jaw, causing the segment of the circle occupied by the upper cutting teeth to become so contracted that not having room to take their proper position in the front of her mouth, they had emerged from their sockets in a side-long direction, making her chin to project, and spoiling the whole contour of a face otherwise handsome. I undertook the case, and brought them all to fall (as they ought originally to have done) outside of the edges of their antagonists in the under jaw in less than a month, to the great satisfaction and astonishment of the young lady and her friends.

The facility with which the irregularities of the teeth can be remedied by skilful treatment, when taken at an early age, the following case will illustrate :—A little girl, about nine years of age, whose permanent central cutting teeth in the upper jaw (from neglect) passed through the gums in an improper direction ; that is to say, so as to fall within the inner circle of the lower jaw, and whose laterals would have followed in the same direction had I not been consulted, by which she would, as in the foregoing case, have had an unsightly deformity, commonly called a projecting chin. The irre-

gular manner in which the central cutting teeth came forward so much disfigured her previously handsome countenance, that her father, alarmed at the consequences of a permanent defect, consulted me, and in four days I caused her teeth to occupy their proper position outside of the edges of the under cutting teeth, as did their laterals on their protrusion a few months afterwards.

A boy, now nearly nine years of age, has been under my care for the inspection of his teeth since the age of three years. His temporary teeth were always unsightly, and even at four years of age were decayed, and he suffered much from tooth-ache in one of the grinding teeth in the upper jaw, which was cured by the application of the sedative tincture and afterwards stopped; a cavity in another was also stopped with the permanent cement before any pain was complained of, for the purpose of preventing it from that and further decay, consequently to retain it in its place till the proper period for shedding it arrived. So much is the ill effects of extracting the teeth of growing children to be feared that I have always used my utmost endeavours to preserve them. Between six and seven years of age he had another violent attack of tooth-ache in one of the grinders on the opposite side of his mouth, which was also removed by the use of the sedative tincture and stopping; so that I preserved the whole of his temporary teeth up to the proper time of their shedding, by which means the jaw having attained its regular growth was capable of accommodating the teeth

with that space which was necessary to enable them to fall with precision in the dental circle, without compelling the child to suffer the unnecessary infliction of pain by extraction.

I was consulted some time ago by a lady, apparently under thirty years of age, who was afflicted with an excruciating tooth-ache, proceeding from inflammation of the membrane which covers the roots and lines the sockets of the teeth. All her back teeth on the right side in the under jaw were loose and violently affected, and, in short, were in such a tender state that she could not bear to have them touched with the slightest pressure. One of them (the second small grinder) was only a root, having been broken some years before by a dentist in the act of extracting it. She had suffered violent agony for five days and nights, with scarcely any intermission, when she applied to me, after having tried cathartics, fomentations, leeches, and a number of other expedients, which, being administered without judgment, were of no avail. I recommended her to use the aperient mixture every two hours, as directed in p. 96, and to wash her mouth repeatedly with a *mild* infusion of roses*, to each table-spoonful of which five drops of the sedative tincture were added and held

* I consider it my duty here to apprise my non-medical readers that even the *mild* infusion of roses being compounded of sulphuric acid should only be used in extreme cases, as above recommended, with the sedative (or, as is sometimes necessary, the astringent) tincture. Acids should be avoided as much as possible in all diseases connected with the teeth.

in the mouth until it became warm. I also directed her to apply the rubefacient to her face in the manner described (p. 94), which entirely allayed the pain in less than six hours, and their tenderness was in a great measure relieved, so that in a few days her general health was re-established. This case, in a great measure, accounts for the little relief obtained by persons having broken roots or teeth extracted for the cure of tooth-ache without first considering whence proceeds the cause of the pain. Had I extracted the broken root, as is the general practice (unfortunately known to thousands), on a return of the paroxysm a further extraction would probably have taken place, until perhaps the whole of the teeth on that side of the affected jaw would have been lost to the suffering patient; instead of which she now wears an artificial tooth placed over the broken root, supported by caps attached to teeth which, had they fallen under the hands of many practitioners, would never have been suffered to remain to answer the original purposes for which they were intended by nature, and which they yet continue to do with perfect ease and satisfaction.

A gentleman who accompanied and waited for his friend while I was performing an operation for him, shrugged up his shoulders and exclaimed, "I thank God I want no dentist," requesting me at the same time to inspect his teeth. I did so, and they appeared sound, viewing only their exterior appear-

ance; but I discovered no less than fourteen specks where decay had not only commenced but had made rapid progress under the enamel, between the indentations of the grinding and hack teeth, and fully convinced him (by placing a dental mirror in his mouth) of the error he lay under.

The above cases prove the necessity that exists for a regular inspection of the teeth (even when unattended with pain) both of adults and children. It would be advisable for parents, who are anxious for the symmetry and durability of the permanent teeth of their offspring, to have them occasionally inspected from the age of three years up to six or seven (the period of shedding the temporary teeth), when they will require to be more carefully watched till the permanent teeth have occupied their situations in a proper manner. Children should be taught to use water and a soft brush every morning; when arrived at a more mature age they will require a dentifrice and a harder brush.

OBSERVATIONS.

THERE are many persons who advertise to cure tooth-ache or tender teeth with unrivalled *cements**, as they

* Of the properties of cements in general it would be tautology in me to enter here into a more particular description than is given in the body of the work; in corroboration, however, of what I have there stated respecting it and other points, I shall here give an extract or two from letters now in my possession :—

“ *Dublin, August 29, 1832.*

SIR,—Having read in a work of yours, entitled a Treatise on the Diseases of the Teeth and Gums, a description of your cement, which, from comparing it with other cements, and seeing its effects on two or three of your patients, I am convinced is the only perfect one at present in use, I am induced to inquire whether you would dispose of the receipt or the cement made up and ready for application.

“ I am, &c. &c.

“ J——, a *Dentist*.”

—
“ *London, Dec. 8, 1831.*

SIR,—Have the kindness to send me some more of your tincture for my teeth, it is the only thing I can get relief from.

“ Yours truly,

“ ———, *Surgeon, M. R. C. S.*”

—
“ *Yorkshire, Feb. 4, 1832.*

SIR,—Having had one of your Dental Cases last year, and found it very useful, I wish to present one to the surgeon of this place, who is a very scientific man, and should be glad if you would send me one for that purpose, and a further supply for my own case.

“ I remain, Sir, yours, &c.

“ T. R.”

—
“ *Suffolk, Dec. 21, 1830.*

SIR,—Having last year had a tooth stopped by you, which con-

term them, but who, from the improper substances they use, occasion almost inconceivable injury to the persons they operate upon. One gentleman, a respectable dentist, has informed me, that within the short space of a fortnight he has been obliged to extract seven teeth that had not long before been stopped by the substances now in common use by some who are considered *eminent dentists*. If so many failures occur in the course of one person's practice, how great must the evil be in this vast metropolis. This, however, may in a great measure be accounted for by considering that, in addition to the injudicious stoppings used, the inflammation (if any) is seldom previously allayed, or the decayed bone removed previous to filling the cavity.

Before a patient allows a tooth to be stopped with any substance (gold or foils excepted) for which a solvent

tinues to give every satisfaction, I request that you will be so kind as to supply me with your preparations and instruments that I may be enabled to relieve several patients actually waiting for operations.

"Yours most respectfully,

"———, *Surgeon, M.R. C. S.*"

"SIR,—The information I have received from the perusal of your book on the Preservation of the Teeth, and living now entirely in the country with twelve children (many of whose teeth are in a decaying state), where the aid of skilful and scientific dentists cannot be obtained, I am induced to ask the price of one of your *Dental Cases*; having some mechanical knowledge I think I may be enabled, with your instructions, to perform the operation of stopping as well as the generality of country practitioners. One of my own teeth has been stopped several times, and in no instance has the stopping remained in the tooth forty-eight hours.

"*Derbyshire,*
May 23, 1831.

"I am, Sir, yours, &c.

"W. R."

has not previously been provided (which is the case with most, if not all, of the stoppings now in use), he should cause the operator to exhibit how such a substance, as is about to be placed in his tooth, can be removed should occasion require*; otherwise he must expect, should a return of tooth-ache occur, to suffer not only its pain, but a similar result as that experienced by the gentleman mentioned in another part of this work (*see note, p. 42*). Had that gentleman had my composition and solvent the stopping might, with ease, have been removed, the tooth-ache cured, and the tooth again stopped and rendered serviceable, perhaps for life.

To describe all the empiricism to which dentistry has for many years been exposed would fill a volume. The little attention bestowed by most persons upon the teeth, together with the want of knowledge in the management of them, has induced numbers of crafty men to decline other employments to profess dentistry; indeed, the rage to become dentists has reached to such a climax, that men, bred to the meanest occupations, both English and foreigners, now profess not only to perform *instantly* all the most difficult operations in this science, but have even had the audacity to compile treatises on it, and to venture their opinions to guide the public in

* This simple question would often astound the operator who now unobstructedly fills the cavities of the teeth with succedaneums under the various appellations of "Cements, Anodynes," &c., and might give the discerning patient an opportunity of judging into what hands he had fallen.

the choice of an article with the qualities of which they are themselves unacquainted.

Many of these pretended dentists fit artificial teeth in such an unskilful manner that they are neither an ornament, nor are they of any service for the purposes for which they were intended. A literary gentleman, tolerably conversant with the nature of artificial teeth, appeared surprised when I informed him that, when properly fitted, they answered all the purposes of mastication, &c. because some of his acquaintance are under the necessity of removing them at every meal. This is the result of unskilful workmanship, proceeding from the injudicious manner in which they are fitted to the gum, or -from their improper construction. Thus, for instance, a person repairs to a self-styled dentist to supply the deficiency of a tooth or teeth, and is shown different specimens of exquisite workmanship. Being charmed with their handsome appearance orders are given to supply the deficiency, the person so ordering not being aware that these specimens are taken from the hands of workmen or assistants who are wholly unacquainted with more than merely fitting them to a model, a totally different operation from the precise fitting of the mouth, which can only be skilfully done by artists well versed in the anatomy of the jaw and proper use of the teeth (a part of the science understood only by a few of those who are regularly-bred). Hence so many failures occur that many persons attribute to a defi-

ciency in the art what in reality results from the unskillfulness of the artist, who, from want of ability, merely places the teeth in the mouth instead of accurately fitting them. All pieces after being constructed on a model require to be carefully fitted to the patient's mouth, otherwise they never can perform the office of mastication.

I am almost led to believe that many dental practitioners (owing to their unaccountable success), through their ancestors or otherwise, are not aware of their total want of knowledge in the art of fitting and arranging artificial teeth to the mouth, so as to render justice to the wearers, who hope, by their means, to repair the defects of their articulation and mastication; but I can scarcely find proper terms to express my indignation at the chicanery used by others, who are perfectly aware of the injustice they are guilty of, but urged by their great desire of gain supply a totally useless substitute to their patients, well knowing that they are incompetent to perform the functions for which they are required by the wearer; thus the imperfection of the practitioner tends to aggrandize him owing to the *repeated visits* of his *deceived* patients. I am led to speak thus harshly from the numerous imperfect fittings that daily come under my notice, a general idea of which I shall endeavour to convey to my readers:—The practice is, that artificial teeth are so fitted and arranged that the whole of the pressure is thrown upon the patient's remaining teeth, and the artificial teeth being thus kept

apart are as useless in the mouth as if they had never been placed there. Thus, by leaving a space between the grinding surfaces, they are supposed to fit with great precision and ease, because not acting upon each other they cannot cause uneasiness, and, being thus apart, cannot *divide* the food in the act of mastication. Such a mode of fitting artificial teeth, however, is, I am sorry to say, a trick of nearly all the profession, who not only thereby evade much of the expenditure of labour and time that is absolutely necessary for making them useful, but actually, by the celerity with which they perform this fraud, persuade their patients that they are well versed in the knowledge of the science they profess.

It is impossible to lay down rules for detecting every species of imposition that may be practised by the untaught professors of dentistry; but if the foregoing remarks be attended to by persons requiring artificial teeth, those pretenders must try to acquire a knowledge of fitting them upon more scientific principles. In saying thus much, however, I wish it to be understood that it is not my intention to endeavour to prevent any ingenious artist from following a profession for which he is competent; my object being merely to advocate the perfect principle upon which artificial teeth can be made to answer all the purposes of natural ones, and if I have succeeded in my endeavours I shall feel heartily gratified in having rendered myself in some measure useful to society.

Description of the Dental Cases.

No. 1.—A plain Mahogany Case, adapted for the toilet, containing Dental Mirror, two Excavators, three Sealing Instruments, Tenaculum, Slab, Spatula, Lint, Quill Scoop, Probe, Dentifrice, Set of Tooth-brushes, six Bottles containing Alcohol, Sedative Tincture, Anodyne Cement, Absorbent Powder, Astringent Tincture for Lotion, Rubefacient, &c. with cork stoppers, Two Guineas and a Half; ditto, with glass stoppers, Three Guineas; or a superior No. 1 Case may be had, with double the quantity of preparations, ivory-handled instruments, cut-glass bottles and stoppers, and superior mirror, price Five Guineas.

No. 2.—A plain but larger Case, containing the above articles with the addition of four instruments for Stopping, Enamel Cutter, Bowl Instrument, Spirit Lamp, Four Files, Metallic Scoop, Permanent Cement, and Solvent, Five Guineas and a Half; ditto, with glass stoppers, Six Guineas.

No. 3.—A superior and larger Case, with double the quantity of preparations contained in No. 2, superior Mirror, Gum Lancet, an extra Excavator, and the instruments having ivory-handles, with cut glass bottles and stoppers, Ten Guineas.

If required, the above can be fitted up in elegant Rose-wood Cases, with cut glass bottles, mother-o'-pearl handled instruments, mounted in silver or gold, from Twenty Guineas and upwards.

The following may be had separately :—The Sedative Tincture, Astringent Tincture, Anodyne Cement, Absorbent Powder, and Rubefacient, at Two Shillings and Sixpence, or Five Shillings each. The Denti-frice, Two Shillings and Sixpence per box. Tooth-brushes Three Shillings per set. The Permanent Composition, or Cement and Solvent, are One Guinea each the ounce, three ounces for Two Guineas and a Half, or twelve ounces for Five Guineas and a Half; and can only be had with the cases, but persons having had a Dental Case may be supplied with any quantity they may require, but in no smaller packets than one ounce, and if required in larger quantities * a considerable reduction is always made.

All Letters and Parcels must be post (or carriage) paid, and the full price of the case required remitted with the order; when parcels are addressed to Mr. Scott, it is requested that a shilling be enclosed to defray the expense of town portage; also, one shilling must be enclosed for the packing case.—6, Lower Grosvenor Street, London.

* All Mr. Scott's preparations contained in the Dental Cases will keep any length of time, or in any climate, if the bottles be closely stopped.

Persons desirous of consulting Mr. SCOTT may prevent unnecessary delay by making a previous appointment; but he devotes every day (Sundays excepted), from eleven till five o'clock, to applications in succession.

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